Volunteer Firemen

AUGUST

1944

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EFFECTIVE WITH ANY MAKE OF FOG NOZZLE

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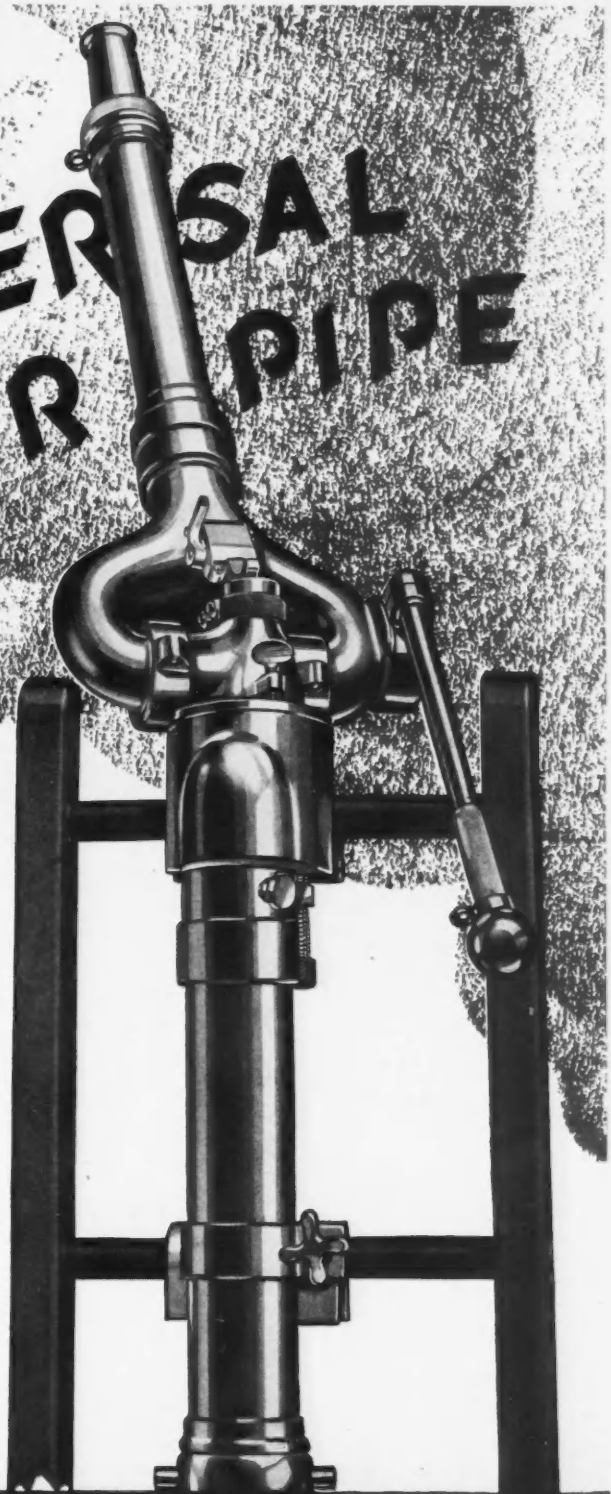

Here is a fire fighting necessity — a portable ladder pipe to convert your ladder equipment into a water tower featuring:

MINIMUM WEIGHT—Fabricated from AKROLITE, a corrosive resistant aluminum alloy.

BALANCED—Engineered for minimum ladder strain.

EFFICIENT—Minimum friction loss, efficient stream straightener.

CAPABLE AND FLEXIBLE—Engineered for a wide range of operation. Three separate smooth bore interchangeable nozzle tips engineered for solid, far reaching streams.

INCOMPARABLE DESIGN—Patterned after the time tested and proven Akron Multiversal Portable Deluge Nozzles.

AKRON BRASS MFG. CO., INC.
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AKRON BRASS
FIRE FIGHTING EQUIPMENT

Mack 505 Triple Combination Pumper . . . a new addition to the Moultrie, Georgia, Fire Department.

A fire has two strikes on it from the start when it's up against a Mack. For 33 years Mack Fire Apparatus have been the last word in fire fighting efficiency. And they have been built to pump water until the fire is out. That's why fire chiefs from Maine to California will tell you— "You can't beat Mack!"

Mack Manufacturing Corporation, Fire Engine Division
Empire State Building, New York 1, N. Y.

Mack
FIRE APPARATUS

If your community needs additional fire-fighting equipment or replacements, think of Mack. Remember, Mack Fire Apparatus is backed by the greatest engineering resources in the industry.

IF YOU'VE GOT A MACK, YOU'RE LUCKY . . . IF YOU PLAN TO GET ONE, YOU'RE WISE!

Volunteer Firemen

THE cover picture (*Acme*) this month shows Los Angeles firemen battling a blaze started when a butane gas transport truck exploded. The butane was being delivered to a bakery which was ruined.

Fires of this kind are among the most difficult that firemen are likely to encounter. There is also a marked increase in the use of liquefied petroleum gases.

The N.F.P.A. maintains Standards for Handling, Storage, and Transportation of Liquefied Petroleum Gases which include a division on Tank Trucks for Liquefied Petroleum Gases. For a discussion of the problems involved in fighting this kind of a fire, see A. R. Smith's article on page 6 of this issue.

THE volunteer firemen give time and effort from fire to fire with little or nothing in the way of credit or commendation for their invaluable service. An editorial in the *Erie* (Pennsylvania) *Dispatch Herald* had the following to say in appreciation of the volunteer fire fighters.

The fire companies referred to are:

Doebler Hose Co, Girard, Pa., Chief Francis Unseld; Fairview Firemen's Relief Association, Inc., Chief Earl Vigrass in general charge; North Girard Fire Co., Chief Raymond Kidder; West Lake Hose Co., Inc., Chief William Middleton; West Ridge Hose Co., Inc., Chief Ross Wilkins.

"One of the outstanding virtues of the motor age has been the manner in which rural communities, villages, and hamlets are brought closer together for their own good.

"This came forcibly to our attention the other day when volunteer fire companies from a half dozen different communities quickly sped to Fairview to bring under control a business block blaze which threatened that Erie County town.

"These fire companies, which have sprung up rapidly during the past few years in the various areas in and about the city of Erie, are splendidly equipped with the latest of motor apparatus and are manned with men who are well trained in the latest methods of quickly bringing fires under control.

"At Fairview the other morning one could not help but be impressed by the manner in which the companies from the nearby places were quickly co-ordinated and the way in which the threatening blaze, fed by drums of highly flammable and explosive oil and turpentine, was rapidly brought under control.

"And to add to this one cannot help but realize the communal spirit which has been engendered by the way in which these various volunteer companies answer to the cry of distress from their neighbors. On top of that, one measures in dollars and cents the added features which have been placed in property insurance policies because of the work of these fire companies, to say nothing of the feeling of safety and protection of lives and homes resulting therefrom. On top of it all, is the fact that these companies are maintained and equipped through public contributions and not through direct taxation, an item which means much to the average home owner.

"Let us hope we have more of these fire-fighting companies."

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THE VOLUNTEER FIREMAN

THE West Coast fire season extends from summer through the fall, quite opposite to the East with an early spring fire season. Strong winds and high humidity add to the danger of forest fires on the West Coast.

The following warning contained in the news letter of the California Department of Natural Resources is worthy of the attention of all departments facing the forest fire problem.

"With the approach of the hazardous season for fires, Woodbridge Metcalf, specialist in forestry of the University of California Agricultural Extension Service, advises building up of volunteer fire-fighting personnel in county departments.

"A grave shortage of volunteer fire fighters has been brought about by the drafting of men for military service and the labor recruiting of industries, he points out.

"As grain is ripened in the fields, Metcalf suggests the following precautions on the part of the farmers:

"1. Pile up brush, weeds, trash, and other refuse and burn it on days when there is no wind.

"2. Clean up trash along roads and other paths of danger.

"3. Remove danger of fire damage to woodlands or fields by building fire lanes, making tractors and other internal combustion machinery with exhausts and mufflers fireproof before they are used in the fields.

"4. Bury discarded bottles and broken glass.

"5. Make sure fire extinguishers on machines are ready so that any fire starting in the fields may be put under control promptly."

War Production Board reports that the shortage of waste paper needed to make shipping containers remains the most critical wartime supply problem. Send your waste paper to war now, and in so doing remove a fire hazard.

Liquefied Petroleum Gas FIRE FIGHTING

A. R. Smith, Chief Engineer, Oklahoma Inspection Bureau

MANY fire departments are concerned with problems in connection with control of fires and other hazards involving liquefied petroleum gases, and firemen are endeavoring to prepare themselves to cope with these dangers. We cannot ignore the fact that the use of these gases in home and industry is becoming quite general. The slogan "Be prepared" can certainly be emphasized in this regard.

In the beginning the fireman should allay any fear that he may have as to the futility of fighting fires of liquefied petroleum gases. A study will need to be made as to the usual commercial product and how to handle and use it, as there can only be a solution to the problem through knowledge of conditions that may affect successful control of abnormal situations. The average fire department is not likely to be required to function in areas of manufacture of the gases. The comments here set forth will deal with the gases in transportation, in storage, and in use.

Butane and propane are the most common commercial gases. Commercial butane usually is a mixture of butane and propane, as use is facilitated in this manner. Pure butane will vaporize rapidly at about 31° F., at atmospheric pressures, commercial butane at 17° F., and propane at —51° F. Thus we realize immediately that at any temperature as high as 32° F. (the freezing point of water) we cannot expect to have much of this in the open in liquid form.

Therefore, we shall not concern ourselves about fighting the fire as a flammable liquid fire. An exception should be noted in that extremely low temperatures may occasion a liquid butane fire. Butane is a gas we will likely encounter, so it may be well to concentrate on this feature.

We have all learned the proper procedure in handling natural or manufactured gas fires. There is actually little difference between these and liquefied petroleum gas fires. If liquefied petroleum gas is liberated without burning, there is another problem, as butane and propane gases differ in weight from natural and other gases. Butane and propane gas are heavier. They will travel to water, provided there is no air movement, and will fill all low places, such as basements, displacing the air. In the absence of ventilation, the gases will remain in these low places, and any source of ignition will result with fire or an explosion.

Nearly all substances can be changed from gaseous to liquid state by pressure or by lowering of temperature. Butane and propane are no exception. Since volume is a factor, the gases usually are handled and stored in the liquid form by maintaining pressure. Tanks and other containers must be constructed so that the pressure is constant. Any rise in temperature will result in an increase of pressure in the container.

To prevent abnormal pressures with possible ruptures of the container, spring-loaded valves provide a safety means. They are installed in each container whether transport or stationary storage vessels.

Crowley, La. Butane, released by an outlet pipe broken while the tank shown above was being transferred from truck to platform, was ignited by a rubbish fire 162 feet away. An explosion and fire occurred, killing five people and destroying five buildings. (See VOLUNTEER FIREMEN, Dec. 1943)

THE firemen are not required to know whether or not the vessel is properly constructed and arranged for safety. State regulations or municipal requirements should have these matters under control, and rigid enforcement of safety requirements will provide for regular inspection to determine maintenance. The National Fire Protection Association recommendations constitute recognized safety standards and can be employed as a rule for proper construction.

The firemen's job comes when fires or accidents endanger premises or equipment where liquefied petroleum gases are handled or used. There is the case of a transport truck or tank car in transit. A fire is in progress which appears to be ordinary combustible material burning near the tank. Hose streams should be directed immediately on the fire and the tank. It is likely that the safety valves are operating continuously or intermittently. If the operation is intermittent, all fire, including any flame at the relief valve, may be extinguished. If continuous, extinguish all flame except that near the safety valve and continue cooling the tank with hose streams.

If there is considerable fire directed against the tank, determine, if possible, if safety valves are operating. In the case of inoperative valves, do not approach closely unless there is protection such as a substantial wall as there is danger of a major explosion. Direct water on the tank, if possible, and on all burning material other than the flame of liberated gas, which should never be extinguished except as noted above.

When safety relief valves of a tank are not operating under fire conditions an explosion is imminent. If an effort to throw water on the tanks is successful, the cooling effect will be likely to relieve explosion tendencies and facilitate control of the fire. Should the fire be extinguished while gas is still escaping from ruptured fittings it will then be necessary to proceed as though no fire had ensued.

In this case, all sources of ignition, such as exhausts from engines, open flames, electric sparks, should be eliminated in the immediate area and for a considerable distance in the path of vapor travel. Clear the area and permit no one to enter any place where vapors are likely to be, as ignition and flash-backs are likely. If the wind is blowing and small amounts of gas are being liberated, the danger is lessened.

However, all precautions should be taken

When unburned vapor is being liberated it should be controlled by valves, if shut-off is possible, after which all ground pockets or basements must be examined. While the gas contains a maloderant, a flammable gas indicator is the only positive means of detection. When gas is evident, ventilation must then be accomplished.

In some cases it is necessary to fill the tank with water to flush out any remaining explosive gas-air mixtures.

The two major considerations are the presence of unburned liberated gases, and the possibility of explosion of vessels from internal pressure under fire conditions. When vents are operating, there is little likelihood of explosion except under very unusual conditions. Such conditions might be a blow torch impingement of flame on a tank that would tend to soften the metal. Water from hose streams can likely prevent this action.

A difficult situation would be a building fire where transport trucks are garaged. In this regard, such garaging should be in detached open sheds of light construction. The firemen cannot be expected to approach a building if considerable fire is in evidence, as there cannot be a complete analysis of the situation which is so necessary for safe fire-fighting procedure.

The fireman's study of the use of butane and propane will disclose that heavy metal bottles of small capacities are used in most small installations. Normally, there need be no concern regarding these. Abnormally liberated unburned gases will present the usual problem. Fires will probably not be intense, cooling and extinguishing can be handled in the regular manner with normal precautions. Larger installations will involve tanks either under or above ground.

The underground tank, if below a building, or the aboveground tank, if housed, will again present a situation difficult to appraise and under fire conditions is extremely dangerous. The firemen should not approach a fire under these conditions. The underground tanks properly located will not present a severe condition. If the gas is burning at the vents or other opening it should be permitted to burn out. Aboveground tanks present about the same problem as the transport vessels, such as tank trucks, and can be handled accordingly.

IN summarizing to emphasize the principal items, it is observed that the following is advisable:

1. Institute and enforce recognized safety regulations for the handling, storage, and use of these gases.

2. When fires and accidents occur, a complete sizing up of the situation should include a careful analysis of what is burning, particularly as to the gas-fed flames. Ascertain whether all safety valves are operating, how these are operating, or if the tank is venting through a rupture. Note whether flames are concentrated on any particular tank in the group and from which tanks the flames are issuing. If there is no fire determine whether gas is being liberated.

3. Do not approach a situation that cannot be analyzed. Do not hesitate to concentrate hose streams on tanks and burning combustibles. Eliminate all sources of ignition when free gas is unburned, and permit no one to enter contaminated areas. Ventilate all areas after complete examination with a combustible gas indicator.

Fruitridge, Calif. A butane fuel truck burst into flames and collided with the large butane storage tank shown in the picture, breaking pipe connections. Escaping gas burned fiercely for four hours until the 4,200 gallons of butane were consumed. Firemen correctly confined their efforts to protecting exposures, as an explosion might have resulted if the gas flame had been extinguished, since there was no means of shutting off the outlet. (See VOLUNTEER FIREMEN, December 1942)

Oklahoma City, Okla. Five persons lost their lives and 21 persons, including 19 firemen, were injured or burned when a semi-trailer type transport truck carrying 3,866 gallons of propane and butane caught fire and exploded. The truck had two tanks of butane-propane mixture, and two tanks of propane. (*Above*) **Blazing tractor of truck after explosion had blown off trailer.** (*Center*) **Unexploded propane tank which hurtled through the air like a giant robot bomb.** (*Below*) **Typical of damage done to numerous dwellings in a 500-foot radius. End of exploded tank caused this damage.** (See VOLUNTEER FIREMEN, June 1944)

COAL AND OIL TRAIN BURNS
WRECK AT CENTRAL BRIDGE, N. Y.

S/Sgt. Scribner, whose address is now the 3507th A.A.F.B.U. (TS), Section "A," Sioux Falls, South Dakota, is secretary of the Schoharie Fire Department, New York. He assembled the facts for this article from information contributed by the chiefs of the departments who fought the fire. Credit for the photographic record of the fire and wreck goes to Hal von Linden.

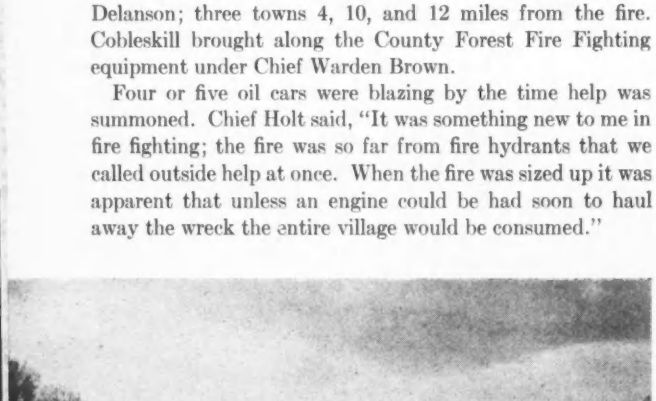
BY STAFF SERGEANT E. SCRIBNER

ALMOST spectacular fire occurred about 1 A.M. on April 25th, when a Delaware & Hudson freight train, pulling 76 cars of coal and fuel oil, was derailed 1,200 feet north of Central Bridge, N. Y. The contents of 26 cars were consumed before the fire was extinguished, totaling at least $30,000 worth of war materials destroyed. This loss excludes substantial damages to the railroad equipment. A Delaware & Hudson switch engine raced nearly fifty miles to pull the remaining oil-laden cars from the burning wreck.

The fire was first discovered by David Enders, whose farm buildings were about two hundred feet from the scene of the accident. Awakened by sounds of a crash and explosion, Mr. Enders saw flames shooting over the roof of his barn and called the Central Bridge Fire Department.

Chief Harold H. Holt, of the Central Bridge volunteers, realized that there were no convenient hydrants near enough and immediately put in a call for Chief Scranton of the Schoharie Volunteer Fire Department. Additional calls went to Chief Herschell Shafer, of Cobleskill, and Chief Wilber, of Delanson; three towns 4, 10, and 12 miles from the fire. Cobleskill brought along the County Forest Fire Fighting equipment under Chief Warden Brown.

Four or five oil cars were blazing by the time help was summoned. Chief Holt said, "It was something new to me in fire fighting; the fire was so far from fire hydrants that we called outside help at once. When the fire was sized up it was apparent that unless an engine could be had soon to haul away the wreck the entire village would be consumed."



The Delaware & Hudson fire fighting train arrived from Oneonta with a freight car containing 10,000 gallons of water, 2 foam generators, a 500 G. P. M. Hale pump, 700 feet of 2½-inch hose, 2 asbestos suits, spray nozzle, and other equipment. There were also several tons of foam powder. It was then about 3:30 A.M.

The foam generators were installed 150 feet from the fire in the lines from the 500 G. P. M. American LaFrance pumper of the Schoharie Department, located as will be noted on the map, about eighteen hundred feet from the fire. The Central Bridge 500 G. P. M. front-mounted Barton pump received its water supply from another hydrant and fed water to a point near the fire where they branched out to two 2½- and two 1½-inch lines. These could not be used all at once due to the pressure loss in the 1,800 feet of hose between the pumper and the nozzles. They were used intermittently where each could do the most good. This eliminated the necessity of transferring hose lines and loss of time.

Cobleskill's 500 G. P. M. American LaFrance pumped from a small creek which was dammed up for that purpose. The Delanson pumper used this stream, also. The Schoharie Forest Fire equipment used a small brook near the barns and kept the adjacent farm buildings wet down. All the others kept pouring water on the unburned cars in order to keep them cool and retard the danger of an explosion.

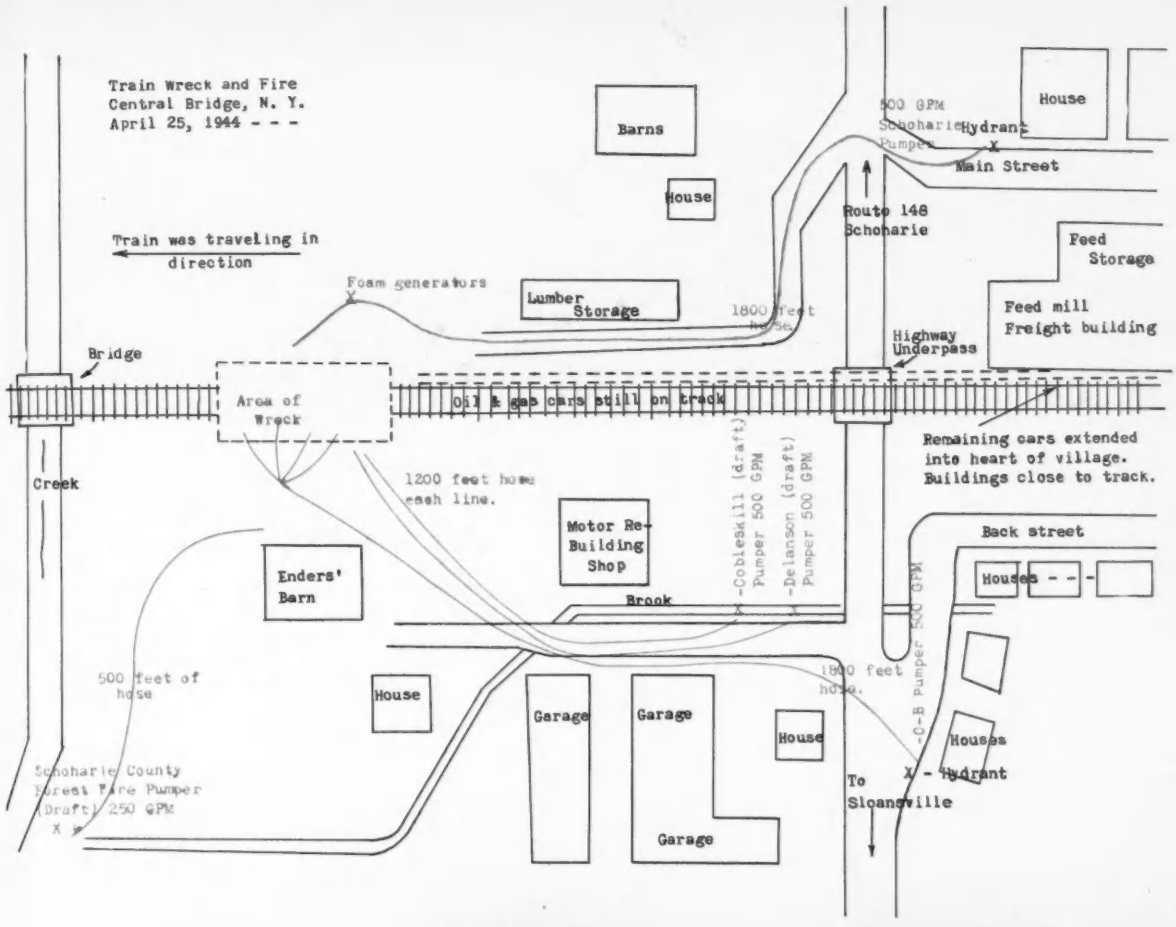
Additional foam powder was brought from Albany, Utica, and later in the day Elmira sent 20 tons.

The fire was of such intensity that the roar could be heard almost a quarter of a mile away. The flame and dense smoke could be seen for 25 miles. About 10 hours of pumping brought the fire under control. Schoharie and Central Bridge units remained pumping until the evening of the same day.

THE cause of the accident was supposed to be a broken wheel on one of the cars, or some part of an undercarriage that gave way suddenly. The cars started derailing about 500 feet from the creek, leaving only the engine and three cars of coal on the track. Had the wreck been farther south it would have been disastrously in the center of the town. As it was, ditches were dug continuously to drain away the oil from the firemen while tank after tank of oil burst.

As will be noticed in the pictures, the cars piled side by side along the track with such remarkable uniformity that they appeared almost purposely placed. The entire wreckage was not cleared away for three days.

Over 60 volunteers fought the fire, using 6,500 feet of hose. Eighty-seven gallons of gasoline and 21 quarts of oil were used by the pumpers during their stay at the fire. Lines kept at hydrant pressure were on the fire for three days. Water meters showed a total of over 2,000,000 gallons of water in the first 24 hours of fire fighting. Not one fireman was injured or burned in any way, nor did the directly exposed farm buildings suffer any damage.



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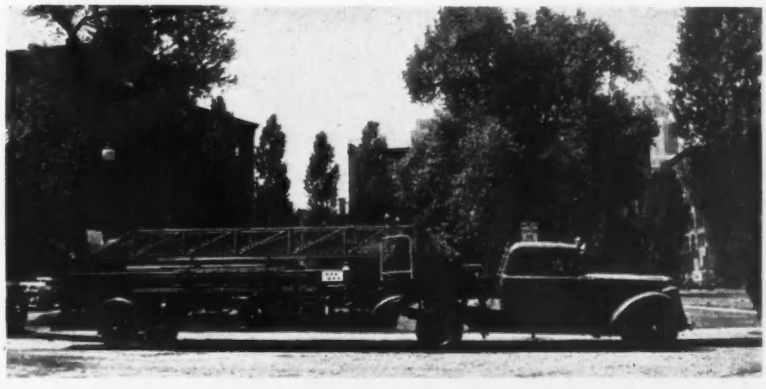
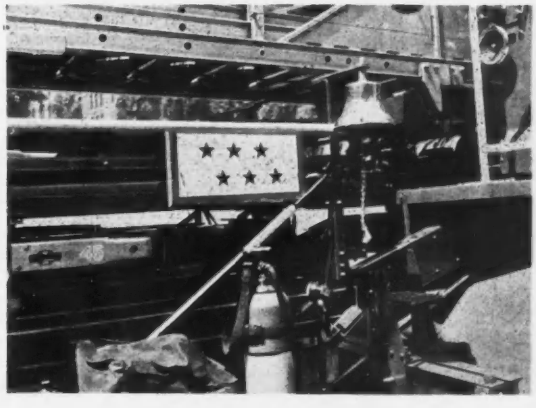
BOSTON FIRE TRUCKS CARRY SERVICE PLACQUES

THE Boston Fire Department has adopted the novel scheme of placing a military service placque on each piece of fire apparatus. The number of men from each company in the service are thereby indicated. These placques supplement a larger service flag hanging on the front of each fire station to show the total number of men from all the companies in the station now on military leave.



The pictures on this page, furnished by Boston's Fire Commissioner William A. Reilly, show the placque carried by famous Ladder Company 8 of the Fort Hill Fire Station. Fort Hill is just around the corner from the editorial offices of VOLUNTEER FIREMEN. The new 100-foot aerial ladder carrying the service placque is pictured at the right. It is clearly indicated that the company has 6 men in the service out of a total of 269 members of the department on military duty or in the naval service of the United States.



The idea of the service placques serves a double purpose. It not only honors the members of the fire department serving in the armed forces, but it is a public reminder that many of the experienced firemen are no longer riding the fire trucks. Fire prevention is more than ever a wartime necessity. Even though the news appears to be good from the fighting fronts it must be remembered that most fire departments have had to go without much of the manpower and new equipment that they would have had if not hampered by wartime restrictions and shortages.

GREAT CIRCUS HOLOCAUST

DANGER from fire was farthest from the minds of nearly eight thousand happy people attending the "greatest show on earth" at the circus grounds on the outskirts of Hartford, Connecticut, on the hot, sunny afternoon of July 6, 1944.

The Ringling Brothers, Barnum & Bailey circus officials likewise appear to have had little premonition of fire danger. The practically new canvas of the "big top" had no flame-proofing, although it had been processed against water by the use of paraffin applied with gasoline as a solvent. The gasoline solvent undoubtedly had largely evaporated but some petroleum residues may have remained with the paraffin waterproofing.

Twenty minutes after the matinee started, the worst fire tragedy in American circus history occurred with the collapse of the flaming tent on the panic-stricken audience. One hundred and sixty-three people died (6 still unidentified), 200 more were hospitalized.

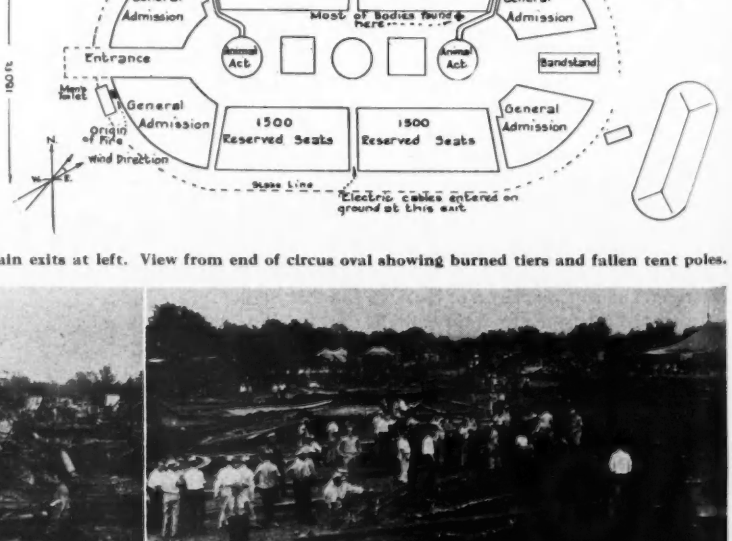
The fire began on the ground near the side wall canvas and the canvas enclosure of the men's toilet to the south of the main tent. These two walls of canvas, back to back, made a concealed space of dry grass and tenting. At this point, the structural ring of the main tent was deeply charred, indicating that the fire had burned for some time before discovery. A match or cigarette could easily have ignited the dried grass.

When first noticed, the flame was five or six feet high. Although a small garden hose or booster line quickly applied might have conceivably controlled a fire of this size, it had spread enough to make three buckets of water thrown on it ineffective.

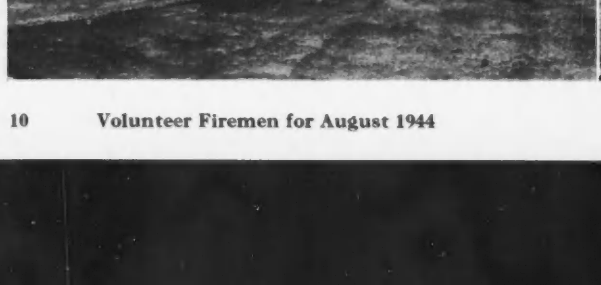
As the fire rapidly increased and hit the edge of the top canvas, the flame was about two feet wide at the point of contact. A gust of wind then shot the fire across the underside of the tent. Almost instantaneously the entire canvas appeared to be enveloped. The ropes holding the supporting poles were burned through almost at once, allowing the great poles to fall among the mob, causing several fatalities.

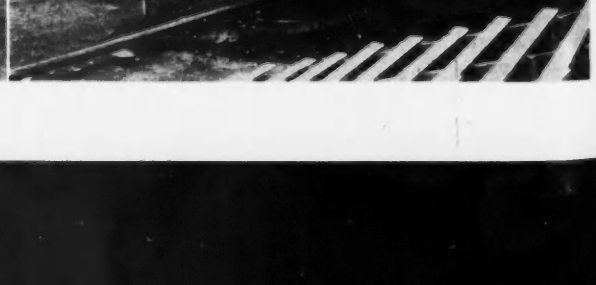
At the time the fire was discovered the animal act was just finishing. Two steel runways had been used to bring the beasts to the ring cages. During the time of the act these runways blocked the main exit aisle on the north side. A considerable number of seats on this side of the tent (opposite from where the fire began) had their means of escape impaired. There

(*Continued on page 24*)



Remains of animal runway that blocked one of the main exits at left. View from end of circus oval showing burned tiers and fallen tent poles.





British Wartime Practice for Relay Pumping

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Arrangement of appliances at the commencement of a relay with hose-laying lorries [hose trucks] and [trailer] pumps.

Crown copyright reserved

On arrival at the supply the appliances should adopt a formation which will allow the pumps to drop off as they reach their allotted stations. Thus, if the water units [automobile pumpers] are employed the hose-laying lorry [hose truck] heads the formation, followed by the ramp lorry, and the supply pump. If a greater distance than 3,000 ft. is to be covered a second water unit, in the same order completes the formation, which is guided to its destination by the despatch rider who has previously surveyed the route.

This is the official story, used by permission of His British Majesty's Stationery Office through the courtesy of the British Information Services. The diagrams and the text are from the Manual of Firemanship (Part 3) by and for Britain's National Fire Service. The text is reproduced without change, with editorial notes in parentheses where terms different from those ordinarily used in U. S. and Canadian fire departments are employed. This article supplements the previous one on organization in the British National Fire Service for relay pumping, as developed by experience at air raid fires.

THERE are two methods of laying out a relay:

(*a*) By means of hose-laying lorries [hose trucks];

(*b*) By hand.

Of these two methods (*a*) is, of course, by far the simpler, and should be used whenever sufficient water units or hose-laying lorries are available. Method (*b*) may, however, sometimes be necessary even when hose-laying lorries are available, as roads may be impassable due to debris or craters. Whichever method is to be employed, all appliances should be ordered to report to the supply, as a relay is always laid from the supply to the fire.

[Accompanying illustrations describe recommended methods in which hose-laying trucks work with automobile pumpers and with automobile-towed trailer pumpers.]

If many relays are required in a single area, or if the roads are so badly affected by bombing that the passage of hose-laying lorries is impossible, then the hose must be laid by hand. The method by which this is effected will depend upon the conditions prevailing at the time. As much use as possible should be made of the towing vehicles of the [trailer] pumps (to avoid delay caused by carrying hose for long distances), but if the roads are badly affected then the hose must be laid by hand, length by length, in whatever manner is most convenient [as also illustrated].

The great advantage of this [hand] method is that it enables the whole relay to be laid simultaneously, each pump's crew being employed laying its own particular section. Although it is inevitably slower than a relay laid out by means of hose-laying lorries it is none the less extremely effective, and, if the crews are well drilled and know exactly what is expected of them, can be carried out in a remarkable short time.

Communications

The method of sending back messages described not only increases the speed with which water is passed along the relay, but also obviates the usual double journey between pumps. As each pump operator receives the water, if a message has not been sent back by the pump in front, he merely runs it to waste until the message "Water on" is received.

As soon as a relay is set up, a means of signalling between pumps should be established, to provide rapid means of communications between pump operators, and

Method of Laying a Relay with Hose-laying Lorries [hosetrucks] and Pumps

If a hose-laying lorry carrying 2½ in. rubber-lined or 3½ in. unlined hose is employed, intermediate pumps will be required, and the appliances should then take up the formation shown [Column 1, above], the hose-laying lorry being followed by the intermediate pump which will operate next to the relay point and the other pumps in order of their nearness to that point, the ramp lorry and lifting pump occupying the same position as before.

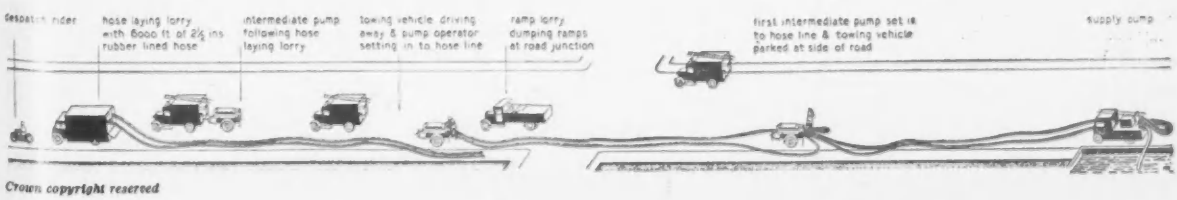
If no relay officer has been specifically detailed, the senior officer or man present takes command of the relay, and instructs the crew of the hose-laying lorry in the route to be followed and the number of lengths to be laid out between each pump. While the relay officer is doing this, the despatch rider makes a rapid survey of the entire projected route to ensure that all roads are clear;

The appliances then move off in the order given above, sufficient hose having first been pulled clear from the hose-laying lorry to enable the lifting pump to set in. The lifting pump sets into the supply and the operator primes his pump. If the relay officer has a car he follows in this. The ramp lorry follows behind the convoy, the crews of the pumps ramping the hose as required [to protect it] at road crossings, junctions, etc.;

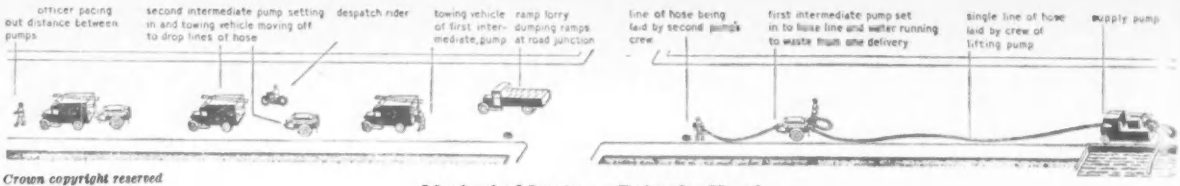
As the hose is paid out, No. 3 [man] in the back of the lorry [hose truck] counts the couplings as they fall. When the requisite number of lengths has been laid he either signals with the bell or calls out "Well," and the appliances are halted. Sufficient hose is pulled clear to enable the second pump, which then detaches itself from the formation, to set in, and the remainder proceed as before. This procedure is repeated until the required amount of hose has been laid and all pumps are set.

The second pump meanwhile sets into the line, and as soon as the hose is connected, the message "Water on" is sent back to the lifting pump. The same procedure is repeated at each stop, the third, fourth and subsequent pumps each setting in and sending back a message to the pump immediately behind. The carrying of messages between pumps is not delayed, and the water should in fact be two-thirds of the way along the line before the final pump is set in. The success of this method of following up with the water depends on good pump operation.

If a steel scaffolding or other dam [tank] is to be erected the crew of the hose-laying lorry carry out this duty assisted by one or more men from the crew of the nearest pump, the relay officer sending back the message "Water on" to the last pump as soon as its erection is under way. Water at the full quantity to be provided by the relay should be delivered by the time the erection of the dam is completed.


despatch rider
hose laying lorry with 6000 ft. of 2½ ins. rubber lined hose
intermediate pump following hose laying lorry
towing vehicle driving away & pump operator setting in to hose line
ramp lorry dumping ramps at road junction
first intermediate pump set in to hose line & towing vehicle parked at side of road
supply pump

Crown copyright reserved


officer pacing out distance between pumps
second intermediate pump setting in and towing vehicle moving off to drop lines of hose
despatch rider
towing vehicle of first intermediate pump
ramp lorry dumping ramps at road junction
line of hose being laid by second pump's crew
first intermediate pump set in to lose line and water running to waste from one delivery
single line of hose laid by crew of lifting pump
supply pump

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Method of Laying a Relay by Hand

Where no hose-laying lorries are available and the roads are usable, the following procedure should be adopted:

(*i*) The necessary number of pumps and a lorry carrying sufficient spare hose will be ordered to the supply. If no relay officer has been appointed the senior officer or man present will take charge. The appliances should then be formed up in the same order as with the previous method, *i.e.*, fourth pump, third pump, second pump, first pump or supply pump, ramp lorry, and, if available, lorry with spare hose.

(*ii*) The supply pump sets into the supply and the appliances move off slowly, the relay officer walking in front of the leading appliance pacing out the distance between pumps. This distance will be governed by the type of hose in use and any gradients on the route of the relay. [This deliberate process will appear slow to firemen who think of such operations performed under ordinary conditions, but is necessary if, as is usually the case during air raids, the entire crew is working in complete darkness.]

(*iii*) When the relay officer has completed this distance he halts the appliances, details the second pump to fall out, and then proceeds as before.

(*iv*) As soon as the appliances have proceeded, the crew of the second pump commences to lay out a single line of hose along the relay route.

(*v*) Meanwhile the crew of the supply pump have been laying a single line of hose in the same manner between the supply and the second pump. As soon as this line is completed the message "Water on" is sent back to the lifting pump, and this procedure is repeated as each line between pumps is completed.

As soon as the first line of hose is completed and water is passing, the crews of all pumps commence laying a second line with the remainder of the hose on board. The lorry carrying the additional hose meanwhile passes along the relay route dumping hose as required. As soon as this second line is completed at each pump messages are sent back as before.

so ensure a steady flow of water along the relay.

A member of each crew should be stationed where he can pass signals from pump to pump, and at the same time keep an eye on ramps [laid over hose to protect it], and the hose line generally. This is particularly necessary when for any reason, such as corners or gradients, an intermediate pump is out of sight of the next pump.

When the relay is operating satisfactorily the spare men from each crew may be withdrawn to assist in general fire-fighting operations at the fire, but there should at all times be two men left with each pump, one to operate it and the other to carry messages, keep the pump supplied with petrol [gasoline], and oil, and keep watch over the hose line between that pump and the next. When hose runs across busy roads it is also advisable to have a man stationed at the ramps to ensure that traffic maintains a reasonable speed over them and to see that they are kept in position.

The appropriate hand signals to be used are set out in the N.F.S. Drill Book.

Relays have frequently to be run in conditions that make such means of communication impossible. Hand signals are invisible in the black-out and lamp signals cannot be used. There is, however, another method of communication between pumps which is valuable at all times and particularly in such conditions. This is by means of the gauges on the pumps.

When a relay is working efficiently the gauges on all intermediate pumps should register identically. The pressure gauges should all show 75 lbs. pressure (unless the relay has been ordered to run at some other pressure) and the compound gauges should all be at zero. The supply pump should show 75 lbs. on the pressure gauge, and a varying figure of inches of mercury on the compound gauge, which will depend, of course, on the amount of lift, and on frictional loss in the suction and strainers.

Any variation in these readings tells a pump operator that some trouble has either already occurred or is impending, and if the gauges are carefully watched, messages between pumps can be anticipated and the appropriate action taken immediately.

Parts 1 and 3 of the Manual of Firemanship of the British National Fire Service are now available. They may be obtained for 75 cents, for each part, from British Information Services, 30 Rockefeller Plaza, New York, N. Y. They are a useful addition to the library of any fireman or fire company.

NEW FIRE RADIO RULES

Special Bulletin

LAST month in VOLUNTEER FIREMEN, Herbert A. Friede, Chairman of Panel 8 of the Radio Technical Planning Board (officially charged to study the needs of radio in the fire departments for the Federal Communication Equipment), announced that the FCC had granted permission to the fire service to use three wave lengths for fire alarm emergency communication.

These rules became effective June 24th and make it possible for many fire departments to acquire a license to operate their own radio emergency stations. Because of limited frequencies available at the time, these stations will be limited to areas having populations of 150,000 and up. However, many counties having volunteer fire companies meet this population requirement.

Mr. Friede, Chairman of the Committee of the International Municipal Signal Association, issued a special bulletin to the members of the Association, giving attention to these new FCC rules on fire department radios.

"These rules make available for 'municipal fire' stations, one medium frequency and two very high frequencies presently allocated for the use of 'marine fire' stations. Because of the limited number of frequencies available for the Emergency Service, it was not deemed practicable from an engineering standpoint to provide separate frequencies (as distinguished from 'police' frequencies) for fire departments of all municipalities in the U. S. Normally, only cities whose fire departments serve a population of 150,000 or more will be eligible under these rules for 'municipal fire' stations unless other cogent circumstances warranting such grant are shown."

As pointed out in July VOLUNTEER FIREMEN, it is hoped that more wave bands will be made available for the fire service in the postwar period for such services as talking between firemen inside buildings to pumpers or officers in the street.

New York City. Firemen try out the walkie-talkie radio at a recent 3-alarm fire.
International News Photo

The cost of a DELAYED ALARM

TIME is the most vital factor in the control of fire . . . minutes — yes, seconds lost in announcing the existence of fire contribute tremendously to fire loss.

A Bucket of water can put out a fire at its start but . . . all the water, firemen and apparatus in town can't save a building where fire has reached advanced proportions

BECAUSE OF A DELAYED ALARM.

The one way to prevent DELAYED ALARMS is to provide an adequate number of fire alarm boxes accessibly and *visibly* mounted.

Include in your *Post-War Plans* an adequate

FIRE ALARM SYSTEM

More than 1000 communities with volunteer fire departments are now protected by Gamewell systems. The maintenance cost is practically nil and adequate systems are priced within the means of every community maintaining an organized fire department.

◆

A few boxes, properly distributed, will in many cases materially strengthen the fire defenses. Our Diaphone horn with coded signals directs the firemen to the scene of fire — or the boxes may be arranged to automatically operate your existing public alarm.

◆

YOUR INQUIRIES ARE INVITED.

GAMEWELL BOX, starting lever exposed — a simple movement of the lever gives the alarm.

THE GAMEWELL COMPANY

Newton Upper Falls, Massachusetts

Fire Inspections by Nassau Volunteers

by Fire Marshal GEORGE W. CLOUGH
Nassau County, Mineola, New York

NASSAU COUNTY is conducting an experiment in a comprehensive plan for the periodical inspection of all buildings, except the interior of one-family dwellings, by volunteer firemen; especially nominated by their respective chiefs, examined, qualified, and appointed by the County Fire Commission.

The county is situated in the middle of Long Island, with an area of 274 square miles. Its estimated population is 450,000. The local government is somewhat complex, consisting of three townships, two cities, and sixty-two incorporated villages. Fire protection is provided by sixty-eight fire departments and companies.

Eight years ago, a Commission was appointed to prepare, for the Board of Supervisors, a new charter to modernize the county government. Officials of the firemanic association told this Commission that the firemen were ready, willing, and able to handle their own affairs.

They also said that the expense of a paid fire service could not be justified by any measure of benefits that might result; no new fire companies were needed, but existing fire departments should be maintained and protected; there should be no interference with the administration, management or operation of these departments. They should be advised in matters of common interest and assisted in questions of fire prevention and investigation by a county organization of their own selection. The staff should devote its full time to such matters and be compensated by the county.

The members of the Charter Revision Commission were most co-operative. These recommendations were enacted into law, effective January 1, 1938.

Effective January 1, 1943, on recommendation of the County Fire Commission, a fire prevention ordinance was enacted by the supervisors having full force and effective, as minimum requirements, in all cities and villages, as well as in unincorporated areas of the towns. This ordinance cannot be considered a complete Fire Code, but it is fulfilling its purpose of establishing the machinery of inspection, with the detecting and correction of conditions liable to cause fires. It also covers the miscellaneous hazards which directly affect the general public.

It is intended to recommend amendments to this ordinance. The addition of Articles or Sections will specifically regulate certain hazards and occupancies, some of which are already in preparation but are being held in abeyance until the inspection plan is in full operation.

There was no intention to form a large staff of County inspectors because of the desire to safeguard home rule in the various communities. It was, however, provided in the ordinance that local bureaus of fire prevention in cities and incorporated villages should have full power of enforcement within their limits. Where local bureaus are not formed, and in unincorporated areas the chief of the fire department may nominate one or more members of his department for qualification and appointment as Assistant Fire Inspectors.

To qualify, the candidate must attend a series of lectures covering the following:

Provisions of the Ordinance.

County Policy with Respect to Enforcement.

Discussion of Common Hazards: Poor housekeeping, combustible accumulations, heating plants, electric services, fixtures and appliances, careless use of matches and smoking materials, inflammable liquids, spontaneous ignition, the lack of fire-stopping, and proper exit facilities.

Special Occupancies: Theatres, assembly halls, auditoriums, hotels, restaurants, rooming houses and apartments, schools, nursing homes, clubs, laboratories, and churches.

General Life and Property Hazards: Factories, storage warehouses, garages, service stations, aircraft factories and hangars, ice and gas plants, power houses, laundries, dry cleaning plants, department stores, super markets; and mercantile occupancies involving special risks such as drug, paint, hardware, butcher and ice cream stores, upholstery, mattress and shoe repair shops.

Other Special Matters: Government reservations, explosives, dangerous gases, liquids, and solids, dust explosions, open fires, overgrown grass and brush, abandoned buildings, and protection of shaftways.

Protective Equipment: Fire alarms, standpipes, automatic sprinklers, fire escapes, and extinguishers.

Other fire prevention laws that it is the duty of inspectors to understand or enforce include Federal and State laws, local, city, town, and village ordinances.

The series is followed by a written examination of about thirty-six questions based on the information given in the lectures.

To this date, all but seven of the sixty-eight fire communities have bureaus or qualified assistant inspectors. The experiment can now be said to be in almost full operation.

At the present time, the inspectors of the best departments are thoroughly covering thirty-six to forty buildings a month. They have corrected a great many probable causes of fire with relatively few re-inspections necessary to see that their recommendations are carried out.

It is notable that the inspectors are given the decision, under the Nassau County Fire Prevention Ordinance, as to what constitutes combustible conditions. To quote, from "Inspection — General Hazards: (he) shall inspect . . . for the purpose of ascertaining and causing to be corrected, any conditions liable to cause fire." In in-

Date_____

To_____

_____

Violations_____

_____

_____

_____

Re-Inspection

Date_____

Inspector_____

NOTICE OF COMPLAINT

BUREAU OF FIRE PREVENTION

NASSAU COUNTY, N. Y.

*Date*_____

*Name*_____

*Address*_____

*You are hereby notified that the following violations of Nassau County Ordinance 66-1942 exist on your premises*_____

_____

_____

*These violations must be removed by*_____

Inspector

_____

Community or Fire Department

From an address delivered at the Volunteer Firemen's Forum, National Fire Protection Association meeting, Philadelphia, Pennsylvania, May 8–11, 1944.

NASSAU COUNTY FIRE COMMISSION
BUREAU OF FIRE PREVENTION
Mineola, N. Y.

School Inspection Form

1. _____ SCHOOL
Address _____
2. Date of Inspection _____
3. EXITS:
Are they ample in number?
Are they unobstructed?
Do they open outward?
Do double doors operate together?
Are they equipped with panic bolts?
Are they ever locked to occupants?
4. FIRE ESCAPES:
Are they substantial?
Wide treads and low risers?
Are they unobstructed?
Is there a ladder section to roof?
Do they pass unprotected windows or doors?
5. BASEMENT:
Condition of boiler room?
Fire of storage and waste?
Incombustible walls and ceiling?
Fire doors?
Open outward? _____ Self Closing?
Heating System. Condition?
Storerooms, stockrooms, closets. Condition?
Incinerator? _____ Safe?
Janitors rooms. Condition?
Any storage of volatile, inflammables?
General housekeeping conditions?
6. SPECIAL ROOMS:
Manual Training, Domestic Science, Cafeteria?
General condition?
Two exits?
7. ALARM SYSTEM:
Building?
To F. D. Hdq.?
8. WIRING, fixtures, appliances, fuses—condition?
Switch and fuse boxes—metal?
Closed?
9. EXTINGUISHERS: Number?
Kind?
Serviced?
10. SPRINKLERS?
F. D. Connection?
11. STANDPIPES?
F. D. Connection?
12. AUDITORIUM, stage and projection booth.
Condition?
13. EXPOSURES?
14. DRILLS. How Often?
Systematized? _____ Roll Call?
15. PREVENTION INSTRUCTION?
SELF INSPECTION?
16. Other _____

_____ Department _____ Inspector

FC11—250—6-43

NASSAU COUNTY FIRE COMMISSION
BUREAU OF FIRE PREVENTION
Mineola, N. Y.

Inspection Form for Mercantile Establishments

Occupant: _____
Address: _____
Business: _____ Date _____

1. Are there any accumulations of dirt or rubbish on the premises?
2. Is the basement clean and storage orderly?
3. Is there an unnecessary supply of empty boxes?
4. Are the packing and shipping rooms cleaned thoroughly at closing time?
5. Is there any unnecessary combustible material in the yard or court?
6. Is there any oily waste or other greasy material outside of approved waste cans?
7. Are waste cans emptied daily after closing hours?
8. Are there any broken windows, plastering, partitions, flooring, or other similar defects?
9. Are proper aisles provided and maintained unobstructed?
10. Are all entrances and exits maintained and unobstructed?
11. Is any woodwork or other combustible material too near hot water or steam pipes, boilers, chimneys, flues or furnaces?
12. Is the fuel supply safely stored?
13. Are there any open flame lights near combustible materials?
14. Are there any broken electric fixtures or damaged or loosened wires?
15. Are electric cords looped over nails or in contact with any other metal?
16. Are any electric fuses replaced by wire or other improper current-carrying materials or devices?
17. Do any branch circuit fuses exceed 15 Amperes?
18. Are fire doors or shutters ever left open at night, or on Sundays or holidays?
19. Are fire escapes obstructed, rusted, broken or out of order?
20. Are there any violations of rules on smoking?
21. Are all water pails, hose, nozzles and chemical extinguishers in place and in good condition?
22. Are any sprinkler heads coated or corroded?
23. Are any sprinklers obstructed by partitions, piles of merchandise, etc.?
24. Are sprinkler valves open?
25. Are any sprinklers or sprinkler pipes exposed to freezing?
26. How many sprinkler heads are kept in reserve?
27. Is there any part of the premises that the watchman fails to visit?
28. Are window openings protected from exposure fires?
29. Is combustible stock storage isolated by fire walls?
30. Where is the nearest fire alarm box or telephone number of fire departments?

_____ Department _____ Inspector

FC30—1000—6-43

NASSAU COUNTY FIRE COMMISSION
BUREAU OF FIRE PREVENTION
Mineola, N. Y.

Inspection Form for Industrial Plants

Occupant: _____
Address: _____
Business: _____ Date _____

1. Do employees all know and is there posted?
(a) The fire department telephone No.?
(b) The police department telephone No.?
(c) The location of the nearest fire alarm box?
2. Are employees trained as to what to do in the event of fire, and how to handle all factory fire fighting equipment?
3. Did inspection include every corner and concealed space — under benches, behind radiators, cupboards, etc.?
4. Where was there dirt or refuse?
5. Were clothes lockers and cupboards clean and tidy?
6. Was all oily waste in approved metal waste cans?
7. Are waste cans emptied daily after closing hours?
8. Is all litter cleaned up at the end of each day?
9. Are matches used or carried where they should not be?
10. Is there any smoking in unauthorized places?
11. Is the yard free of combustible accumulations or debris?
12. Does the watchman visit every part of plant?
13. Are the watchman's daily reports satisfactory?
14. Was any machinery dirty or poorly oiled?
15. Do any windows, doors, floors, roofs, etc., need repairs?
16. Does stock obstruct aisles or entrances to the building or fire protection equipment?
17. Are any screens or dampers in air ducts out of order?
18. Are gasoline and other inflammable materials handled and stored accoring to rules and with safety to the premises and to the workmen?
19. Is woodwork or other combustible material too near to smoke stacks, flues, furnaces, boilers, steam pipes, etc.?
20. Is the fuel supply safely stored?
21. Is there any danger from hot coals or sparks?
22. Are smoke pipes and heating units in good condition?
23. Are any open flames near combustible materials?
24. When was the electric equipment last inspected by an authorized inspector?
Have his recommendations been carried out?

Typical of inspection forms Nassau County volunteer inspectors use as check cards in inspecting factories, places of business, and schools. When completed such an inventory is an invaluable guide to the county in its consideration of special hazards in relation to their importance.

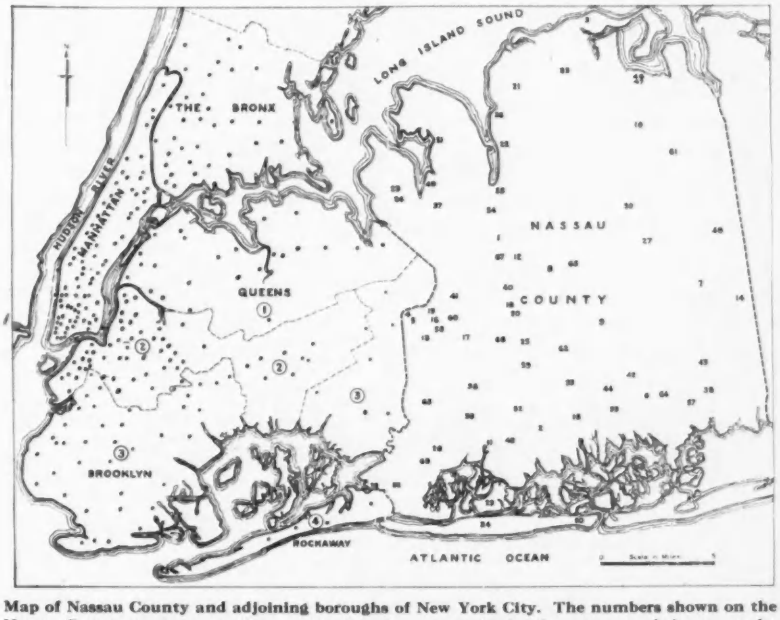
stances of poor public co-operation, the matter is referred to the County Office.

The largest job the volunteer inspectors have done is to prepare an inventory of all buildings in the county, showing the number of each type and classification. It is essential that each community knows the extent of its inspection job and can make its plans so that every building is visited as often as necessary.

Incidentally, when completed, such an inventory will be invaluable to the county as a guide in its consideration of special hazards in relation to their importance. Each inspector is supplied with a guide containing the texts of the lectures formerly attended. They have check cards (see illustration) for use in the inspection of factories, places of business, and schools, and a book in which to register complaints. Periodical meetings are held for discussion of problems or to interpret the laws. Between meetings, circulars of special interest are mailed to each inspector.

Brief reports are required monthly, though the volunteers are not expected to make inspections every month. Only the number of inspections and re-inspections made, the number of inspectors participating, the number of violations disclosed and corrected, and whether the public was co-operative or not is required in the report.

In the general plan, all routine inspections are to be made by the local inspector. The County Fire Marshal will take charge of serious or unusual situations, or when a lack of co-operation may require Court action.



Map of Nassau County and adjoining boroughs of New York City. The numbers shown on the Nassau County territory are those assigned to the sixty-eight fire departments of the county by the County Fire Commission. These are the departments carrying out the fire prevention program described by County Fire Marshal George W. Clough.

TRAINING VOLUNTEER FIREMEN

In Delaware County, Pennsylvania

By William E. Wunderlich

Mr. Wunderlich is the Financial Secretary of the Delaware County Firemen's Association, Lansdowne, Pa. This article is a digest of Mr. Wunderlich's talk at the Volunteer Firemen's Forum during the 48th Annual Meeting of the N.F.P.A.

DELAWARE COUNTY, in the southeast corner of Pennsylvania, is the second smallest county in the state. The 1940 census showed a population of over 310,000, with 59,000 in the City of Chester. These figures have increased about 10 per cent due to the influx of war workers. The county is bounded on the east by the Delaware River, the shores lined with war plants.

To protect this area from fire are the 68 chartered volunteer fire companies; together with several plant fire departments. A volunteer fire company organized in January, 1775, known as the Darby Fire Company, is still active. On hand for instant duty are 96 pumpers, 5 quad trucks, 9 ladder trucks, 4 aerial trucks, 10 hose and chemical trucks, 11 ambulances, 1 rescue truck, and a combined water tank capacity of over 15,000 gallons of water.

The Delaware Firemen's Association, now in its 38th year, divided the county into 8 fire districts with a fire marshal elected by each district and a Chief Fire Marshal for the entire county. These marshals form a board which meets monthly. Most of the districts hold monthly meetings of the chiefs and their assistants to go over reports and problems.

The stations in two of the districts are equipped with the teletype call system operated from a central board in the police headquarters in the township; the City of Chester by the Gamewell system of alarm. In responding to fires the companies in a district help one another; for fires of any size or seriousness, the departments of the entire district will roll. The Bureau of Fire in Philadelphia will also send equipment and men.

In 1932, the Association realized a need of improving the departments with a standard system of fire training. The first school for instructors in the state was conducted in the winter of 1932. Twenty men from different companies were given a 30-hour course under the direction of the Federal Board of Vocational Education and the Department of Public Instruction of Pennsylvania.

When the Public Service Institute of the Department of Public Instruction developed their program on Firemanship Training, the Delaware County Firemen's Association was one of the first to have the firemen of the county secure this training. From the fall of 1939 to the summer of 1943, 29 classes in the Fundamental Course have graduated 483 students and 9 classes of Advanced Training. 228 firemen have received their Certificates of Attainment. The personnel of the classes was made up as far as possible by district, thereby keeping together men who would be working together in the event of a fire calling in extra companies.

When a fireman received his Certificate of Attainment from the Institute in the Fundamental Course, he received also, from the Association, a red keystone with the words embroidered thereon "Graduate Penna. Fire School Delaware County" for the sleeve of his uniform. A graduate of the Advanced Course is presented with a copy of "Elementary Science Applicable to the Fire Service," by W. Fred Heisler, from the Association. When available, a silver emblem signifying his achievement is also presented. (See illustration.) The students who took advantage of this training and carried it to completion are now holding responsible positions in the fire protection and fire prevention services of the government, industry, and as underwriters; while others are instructing their own companies.

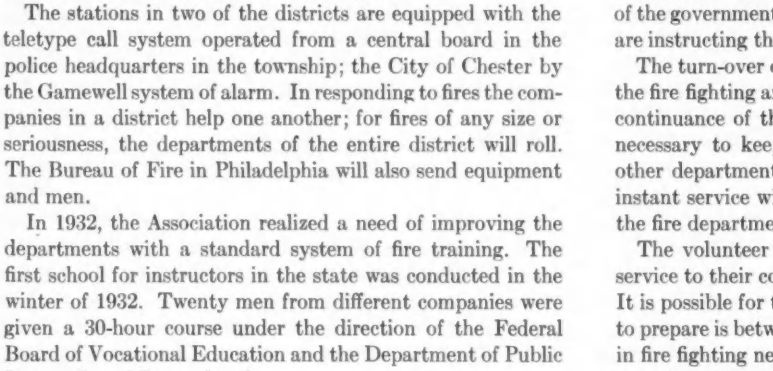
Emblem of achievement worn by a graduate of the Advanced Course

The turn-over of members who are active and interested in the fire fighting angle in volunteer companies is large, and the continuance of the training program for the new recruits is necessary to keep up the efficiency of the companies. No other department of public service is called upon to render instant service with as little knowledge of the situation as is the fire department.

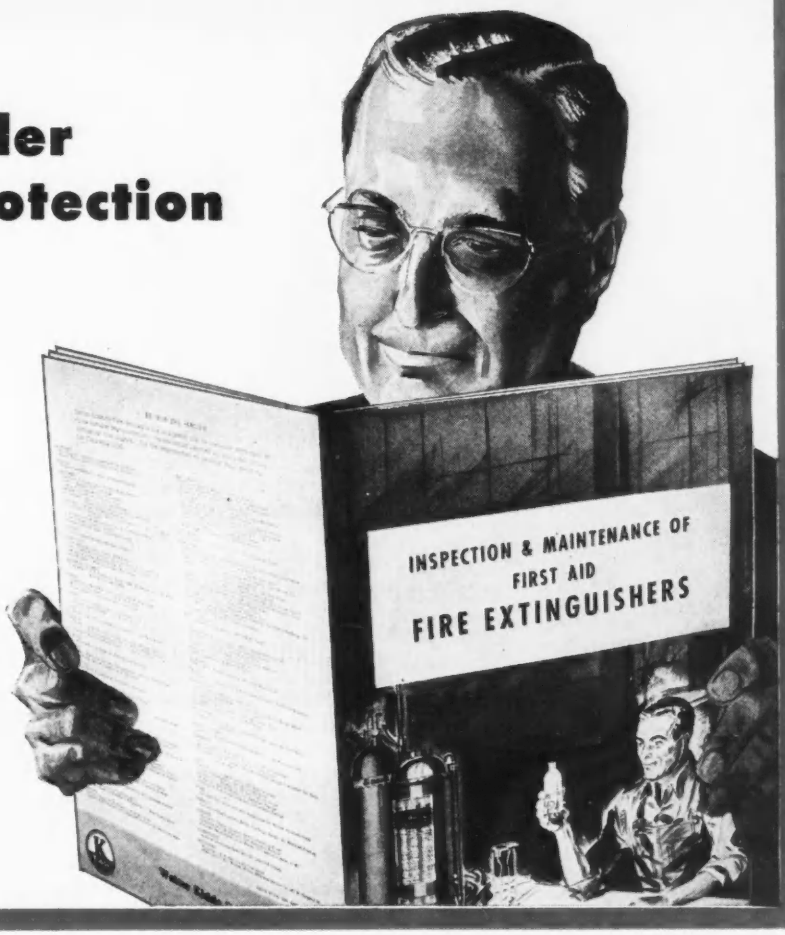
The volunteer fire companies of today are giving greater service to their communities than they did 10 to 15 years ago. It is possible for them to give even greater service. The time to prepare is between fires. Those who have taken the courses in fire fighting need constant practice and rehearsal of evolutions, handling all types of extinguishers, raising and climbing ladders, hose drills with drafting and relaying water, proper handling, use and care of fire department tools, and last, but not least, the proper care and operation of the motor and pump on fire apparatus. Many a dollar has been spent to repair fire apparatus operated by someone who thought he knew how it should be run. The use of the principles in the courses taken by the firemen can be made habitual only by constant review and application.

The surface has just been scratched in building up fire companies to the point where a larger proportion of the residents of the protected community realize their value. For better public relations the

(Continued on page 28)



First reader in fire protection



Free book tells how to keep extinguishers in fighting form

Make sure *your* fire-fighters will always be ready to nip blazes before they get out of hand. Regular inspection is the only safe way.

This new book, issued by Walter Kidde & Company, will help you set up your own maintenance system. It covers all types of equipment, gives exact instructions for examining and re-charging. Write for your free copy today! Just ask for "Inspection and Maintenance of First Aid Fire Extinguishers."

CHAPTER HEADINGS INCLUDE:

- WHO'S IN CHARGE?
- KEEPING RECORDS
- MARKING THE EXTINGUISHERS
- INSPECTION OF EXTINGUISHERS
- VAPORIZING LIQUID EXTINGUISHERS
- CARBON DIOXIDE EXTINGUISHERS
- SODA-ACID EXTINGUISHERS
- FOAM EXTINGUISHERS

Kidde

WALTER KIDDE & COMPANY, INC., 140 CEDAR STREET, NEW YORK 6, N. Y.

THIS ADVERTISEMENT IS ONE OF A SERIES APPEARING CURRENTLY IN INDUSTRIAL PUBLICATIONS

OREGON FIREMEN SEND FIRE PREVENTION MESSAGE TO LUMBER MILLS

THE resolution (*below*) and accompanying letter were adopted by the Polk-Yamhill Firemen's Association of Oregon. It was a voluntary step on the part of the fire departments to band together for better cooperation between plant operators and fire fighters in their area. The letter and resolution were sent to some fifty large and small woodworking plants, primarily sawmills, in the counties of Polk and Yamhill, Oregon.

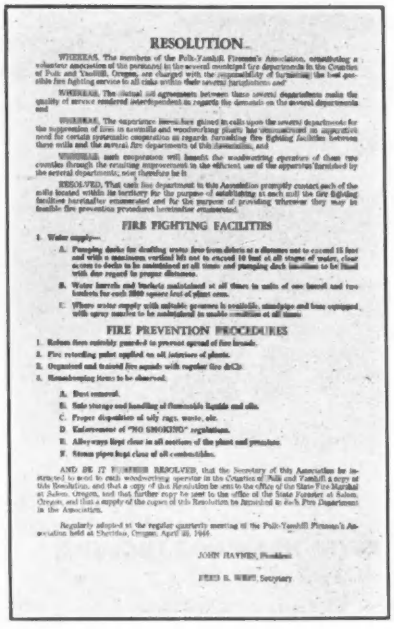
"*Dear Sir:*

"In accordance with the instructions contained in the last paragraph of the attached Resolution adopted by the Polk-Yamhill Firemen's Association at the regular meeting April 28th, 1944, I am furnishing herewith a copy of that Resolution which deals with an urgent need for cordial cooperation on the part of woodworking plant operators in Polk and Yamhill Counties. This cooperation involves modest provisions at the mills by the operators which greatly will add to the protection service available through the several fire departments.

"Last year in Oregon sawmill fires alone caused a total loss amounting to over $1,300,000. This destruction was just as complete as though it had been accomplished through enemy attack as a result of war. Therefore, curtailment of this loss in every way possible is the grave concern of all agencies and operators involved.

"The experience of the several departments in this Association in fighting woodworking plant fires is convincing evidence that the furnishing by the plant operators of the modest additional precautions indicated in the attached Resolution would so facilitate and enhance the operations of the fire departments as to improve immeasurably their ability to control and suppress fires in these occupancies. The Association is confident that a thorough appreciation of this factor will prompt your cordial and immediate action along the lines suggested by the Resolution.

"Yours very truly,
"FRED B. WEST,
"*Secretary.*"



RESOLUTION

WHEREAS, The members of the Polk-Yamhill Firemen's Association, constituting a voluntary association of fire personnel from several municipal fire departments in the Counties of Polk and Yamhill, Oregon, are charged with the responsibility of furnishing the best possible fire fighting service to all risks within their several jurisdictions; and

WHEREAS, The mutual aid agreements between these several departments make the quality of service rendered interdependent in regards the demands on the several departments; and

WHEREAS, The experience herein has gained in calls upon the several departments for the suppression of fires in sawmills and woodworking plants has demonstrated an imperative need for certain systematic cooperation as regards furnishing fire fighting facilities between these mills and the several fire departments of this Association, and

WHEREAS, such cooperation will benefit the woodworking operators of these two counties through the resulting improvement in the efficient use of the apparatus furnished by the several departments; now therefore be it

RESOLVED, That each fire department in this Association promptly contact each of the mills located within its territory for the purpose of establishing at each mill the fire fighting facilities hereinafter enumerated and for the purpose of providing wherever they may be feasible fire prevention procedures hereinafter enumerated.

FIRE FIGHTING FACILITIES

1. Water supply—
   A. Pumping decks for drafting water free from debris at a distance not to exceed 15 feet and with a maximum vertical lift not to exceed 10 feet at all stages of water, clear access to decks to be maintained at all times and pumping deck locations to be lined with door regard to proper distances.
   B. Water barrels and buckets maintained at all times in units of one barrel and two buckets for each 3000 square feet of plant area.
   C. Where water supply with suitable pressure is available, standpipe and hose equipped with easy access to be maintained in usable condition at all times.

FIRE PREVENTION PROCEDURES

1. Refuse fires entirely guarded to prevent spread of fire brands.
2. Fire retarding paint applied on all interiors of plants.
3. Organized and trained fire squads with regular fire drills.
4. Housekeeping items to be observed.
   A. Dust removal.
   B. Safe storage and handling of flammable liquids and oils.
   C. Proper disposition of oily rags, waste, etc.
   D. Enforcement of "NO SMOKING" regulations.
   E. Alleyways kept clear in all sections of the plant and premises.
   F. Steam pipes kept clear of all combustibles.

AND BE IT FURTHER RESOLVED, that the Secretary of this Association be instructed to send to each woodworking operator in the Counties of Polk and Yamhill a copy of this Resolution, and that a copy of this Resolution be sent to the office of the State Fire Marshal at Salem, Oregon, and that further copy be sent to the office of the State Forester at Salem, Oregon, and that a supply of the copies of this Resolution be furnished to each Fire Department in the Association.

Regularly adopted at the regular quarterly meeting of the Polk-Yamhill Firemen's Association held at Sheridan, Oregon, April 28, 1944.

JOHN HAYDEN, President

FRED B. WEST, Secretary

•

Our Readers Say—

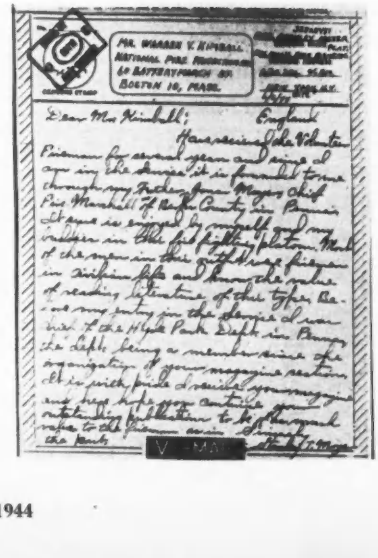
A NUMBER of volunteer fire departments holding membership in the N.F.P.A. Volunteer Firemen's Section have been forwarding copies of VOLUNTEER FIREMEN to their members in the service. That this is appreciated is shown by the following letter to the Editor of VOLUNTEER FIREMEN:

"6/6/44, England

"*Dear Mr. Kimball:*

"Have received the VOLUNTEER FIREMEN for several years. Since I am in the Service it is forwarded to me through my father, Jonas Moyer, Chief Fire Marshal of Berks County, in Penna. It sure is enjoyed by myself and my buddies in this fire-fighting platoon. Most of the men in this outfit were firemen in civilian life and know the value of reading literature of this type. Before my entry into the Service, I was chief of the Hyde Park Department in Penna., the department being a member since the organization of your magazine section. It is with pride I receive your magazine and here hope you continue your outstanding publication to be of as much value to the firemen as in the past.

"Sincerely,
"STANLEY T. MOYER."



This British fireman approaches a blaze the hard way. The English fire fighters are instructed in such gymnastic features as carrying a hose across a tight rope and other exercises to develop "balance, alertness, and physical stamina." (from ARP and NFS Review, April 1944).

FIRE SCHOOL NOTES

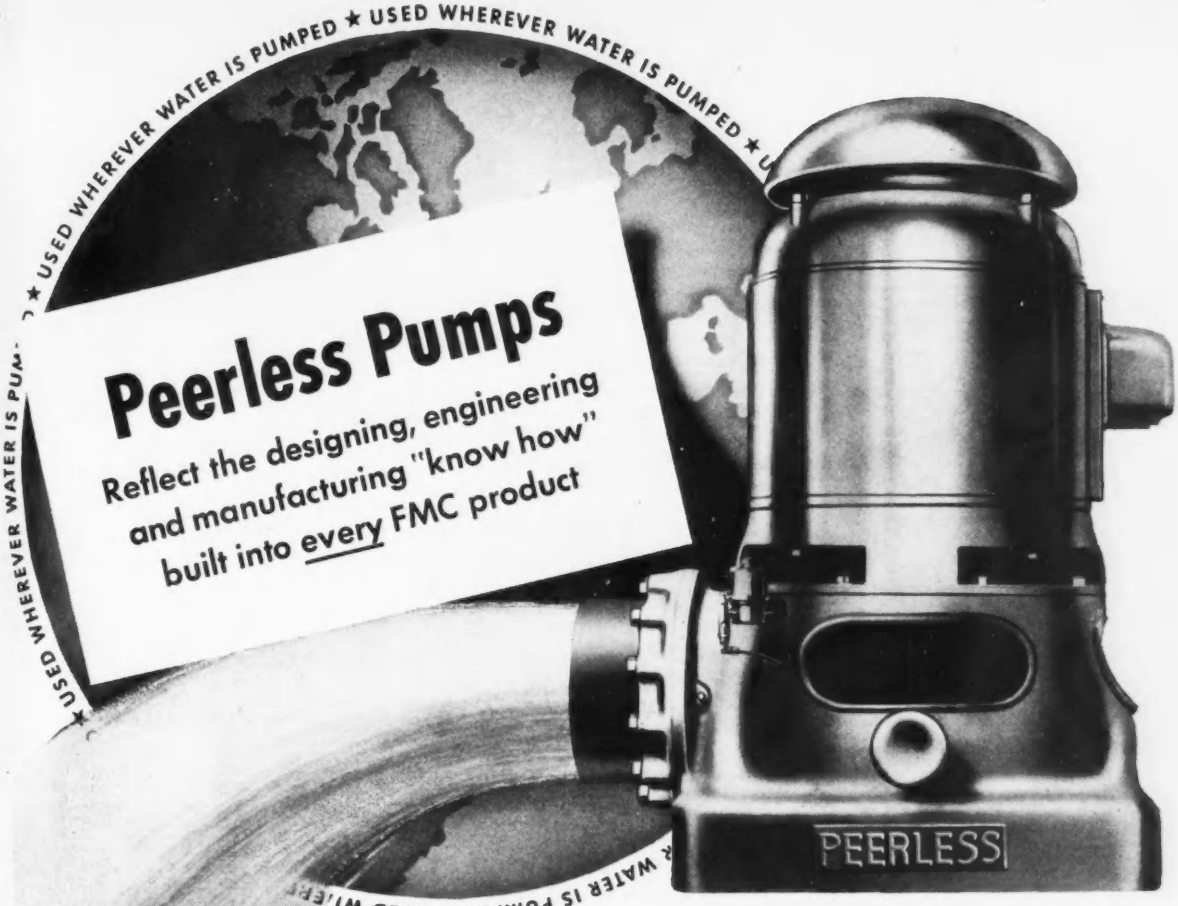
Illinois. The 20th Fire College of the Illinois Firemen's Association, Inc., June 6th-9th, was held at the University of Illinois, Urbana. 517 delegates registered. In the special events department was a demonstration at Chanute Field of a crash fire extinguishment by the Army Service Headquarters. The Chicago Fire Department sent several hundred pounds of magnesium to the Convention for a demonstration on the use of water in extinguishing magnesium fires.

Indiana. The State Fire School at Indianapolis closed on June 14th with a registration of 454. Robert F. Hamm, Fire Department Instructor and associate director of the Indiana Fire Service Training Schools, announced a series of departmental schools throughout the state. The program will be ten to twenty hours of operational training, with surrounding departments invited to attend the sessions.

Kentucky. September 5th-7th are the dates for the Annual State Fire School in Paris, Ky.

Minnesota. The 17th Annual Northwest Fire School, May 15th-17th, at St. Paul in the Public Safety Building. Conducted by the State Fire Marshal Department, it featured the fire department evolution drill contest. 500 registered.

New Mexico. The 14th Annual Fire College and 21st Annual Convention of the New Mexico State Firemen's Association was held over June 12th-14th, at Raton, N. M., in the Shuler Auditorium. Convention headquarters were at the Raton Fire Station. The new officers of the Association will be: President, Chief Tom E. Bonner, Ft. Summer; Vice-Presidents: Chief F. B. MacAtee, Lovington; Neil C. Haynes, Camp Luna; Chief W. D. Moore, Raton; Secretary-Treasurer, Theo A. Rosenwald, Albuquerque.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Reflect the designing, engineering and manufacturing "know how" built into every FMC product
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★ PEERLESS PUMPS are the nation's preferred turbine pumps for municipal, agricultural and industrial uses... preferred because of their superior engineering and greater mechanical stability. Peerless Pumps are products of the same company that created and builds "Water Buffalo" amphibious tanks.

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EXECUTIVE OFFICES: SAN JOSE, CALIFORNIA

Peerless Pump factories at Los Angeles and Fresno, California; and Canton, Ohio

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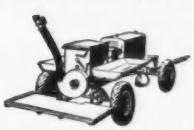
Other Typical FMC Products

JOHN BEAN MFG. CO.... Fog Fire Fighters, Bean Royal Spray Pumps, Automotive Service Station Equipment. Lansing, Michigan.

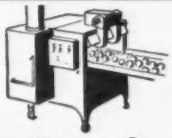
Sprague-Sells Division . . . A complete line of machinery for canning foods. Hoopeston, Ill.



Niagara Sprayer & Chemical Co. . . . Insecticides for protecting crops from insects and disease. Middleport, N.Y.; Jacksonville, Fla.; and Burlington, Ont., Can.

Anderson-Barngrover Division Complete line of machinery for canning foods. San Jose, Calif.

Riverside Division. Citrus Packing Equipment, Automatic Box Making & Lidding Machinery. Fruit and Vegetable Protective Processes. Riverside, Calif.



Texas Division . . . Protective Processes. Canning Machinery, Fruit and Vegetable Packing Equipment. Harlingen, Texas.

Bean-Cutler Division. Sprayers, Dusters and Packing House Equipment for Fruits & Vegetables, Fog Fire Fighters, Turbine Pumps. San Jose, California.

Florida Division . . . Citrus and Vegetable Packing Equipment, and Food Protective Processes. Dunedin and Lakeland, Florida.

Peerless Pump Division. Deep well turbines, hi-lifts & pumps handling water for every purpose. Los Angeles and Fresno, California; and Canton, Ohio.

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READY FOR WAR-TIME DEMANDS!

The H-H INHALATOR

FOR many years the world's most popular life-saving instrument for victims of smoke, gas, electric shock and drowning, the famous H-H Inhalator has everything the wartime firefighter demands in safety of operation, speed of handling, durability and effectiveness. Auxiliary firemen may be trained quickly in the instrument's use — operation is simple and readily understood. Full details in Bulletin No. CA-9, free on request.

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District Representatives in Principal Cities

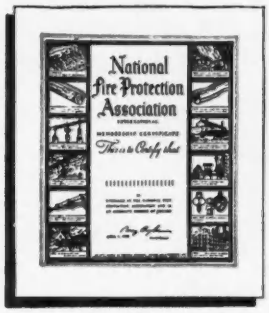
N. F. P. A. Volunteer Firemen's Section
MEMBERSHIP REPORT

ELEVEN volunteer fire companies joined the N.F.P.A. Volunteer Firemen's Section last month, which brings the total number of companies up to 1,080. Though a slight gain, it is a particularly good sign during the summer and brings to a new high water mark the number of departments enrolled. Members are urged to point out the advantages of membership in the Volunteer Firemen's Section at all firemen's conventions, fire schools and fire prevention meetings this summer.

Many non-member departments do not realize that member departments receive many interesting N.F.P.A. publications such as the QUARTERLY, the monthly NEWS LETTER, and special posters and bulletins. These are in addition, of course, to the ten copies of VOLUNTEER FIREMEN received each month by departments in the Volunteer Firemen's Section of the N.F.P.A.

The monthly report on new members is as follows:

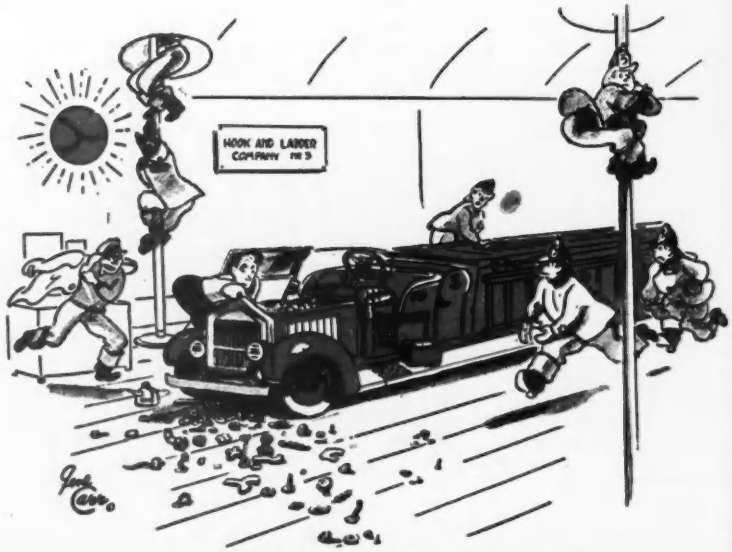
Goodyear Arizona Volunteer Fire Department, Avondale, Ariz.
Bonnie Brook Fire Department, Waukegan, Ill.
Stanton Fire Company, Stanton, Iowa
Vinton Fire Department, Vinton, Iowa
U. S. Navy Air Facility Security Fire Department, Sanford, Maine
Swansea Fire Department, Swansea, Mass.
Elastic Stop Nut Corp. of America, Union, N. J.
Little Valley Fire Department, Little Valley, N. Y.
Adams Township Volunteer Fire Department, No. 2, Toledo, Ohio
McAlester Fire Department, McAlester, Okla.
Sparta Fire Department, Sparta, Tenn.



Membership certificate illustrating the history of fire protection.

MEMBERSHIP PLAN

- Through the Volunteer Firemen's Section, fire companies may become members of the National Fire Protection Association. As a member fire company, the department receives at headquarters a set of all regular N.F.P.A. publications. This includes the Quarterly, the monthly News Letter, posters and bulletins.
- Each member fire company has the Volunteer Firemen magazine sent to the homes of ten men at no extra charge beyond the ten dollars annual dues paid by all associate members of the N.F.P.A. All other N.F.P.A. members pay ten dollars without the ten copies of Volunteer Firemen.
- If more than ten firemen want to receive Volunteer Firemen, an additional dollar should be sent for each extra fireman listed to receive the magazine. Individual subscriptions are not accepted from departments not members of the N.F.P.A.



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WATER PUT OUT THIS OIL FIRE ...WATER IN Water FOG FORM!

FROM FIRE TO OUT IN 2 SECONDS!

Plain ordinary water *can* be used to fight dangerous flammable liquid fires successfully. WaterFOG works where a solid stream of water or even spray is ineffective. Why? The answer is basic physics — speed of heat absorption increases with surface area exposed to heat.

By transforming impinging streams of water into minute fog particles, Rockwood WaterFOG nozzles greatly expand the total surface area of a given volume of water. These particles completely envelop the combustion area — quenching the flames, then cooling the oil surface, retarding vaporization. Finally the foglets expand into steam, shutting off oxygen.

Thus WaterFOG destroys what it takes to make fire: heat, vapor, oxygen. And unlike solid water or spray, WaterFOG floats gently into the combustion area—doesn't plunge into the liquid to accelerate vaporization.

Rockwood installations are approved by Underwriters' Laboratories and Associated Factory Mutuals. Fixed piping installations and hose nozzles. Write for free Bulletin 123, describing how WaterFOG, a nonconductor, absorbs more heat, cools wider area, prevents "flash-back" and lessens water damage.

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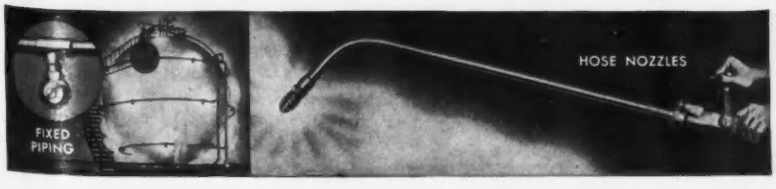
88 Harlow St., Worcester 5, Mass.
Specialists in Fire Protection Engineering, Equipment and Installation since 1907

ROCKWOOD Water FOG

Water Engineered by Rockwood Cools, Confines, Smothers Oil Fires



ROCKWOOD WaterFOG Equipment Protects Bonded Warehouse

At Melchers Distilleries, Ltd., Berthiersville, Quebec, an automatic WaterFOG Deluge System protects the whiskey warehouses from destruction by fire.

WaterFOG system in test operation. Fan-shaped curtain of WaterFOG fills aisle between racks of barrels. WaterFOG can also be discharged from heads under racks.

Fixed Piping Installations for Many Hazards

Wherever flammable liquids are stored, processed or transferred, a Rockwood-engineered installation of fixed piping, heads, valves and automatic control devices will provide maximum protection from fire. In planning such systems, Rockwood engineers (authorities on hydraulics, as applied to fire protection) make individual recommendations for spacing of heads, fog pattern, distance of heads from hazards, etc.

Typical installations are:

WaterFOG Protection for

- quench and dip tanks
- paint shops
- control rooms
- oil switches
- dryers
- oil storage

etc.

Write for Bulletin 123, giving more complete information on WaterFOG equipment.

EXECUTIVES! A colored movie (16 mm.) showing tests of Rockwood WaterFOG, is available.

Hose-Drying is Easy with

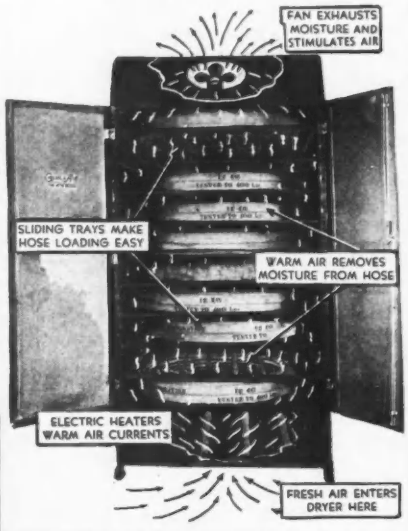
CIRCUL-AIR THE AIR CONDITIONING FIRE HOSE DRYER

Electrically-operated, the CIRCUL-AIR dries hose in a very few hours — 25 to 50 times faster than a tower or a rack. Makes wartime fire hose last longer. By prolonging the life of hose now in service and, by quick drying, lessening the need for large hose reserve for "reloads" while wet hose is drying, CIRCUL-AIR helps to build up the Nation's rubber stock pile.

Preferred by Fire Chiefs because it:

- Saves hose
- Prevents mildew and rot
- Saves drying time.
- Eliminates towers
- Is easier to use
- Reduces hose stretch
- Improves building design
- Air-conditions as it dries
- Saves space, work, time and critical materials

IMMEDIATE DELIVERY FROM STOCK!


FAN EXHAUSTS MOISTURE AND STIMULATES AIR
SLIDING TRAYS MAKE HOSE LOADING EASY
WARM AIR REMOVES MOISTURE FROM HOSE
ELECTRIC HEATERS WARM AIR CURRENTS
FRESH AIR ENTERS DRYER HERE

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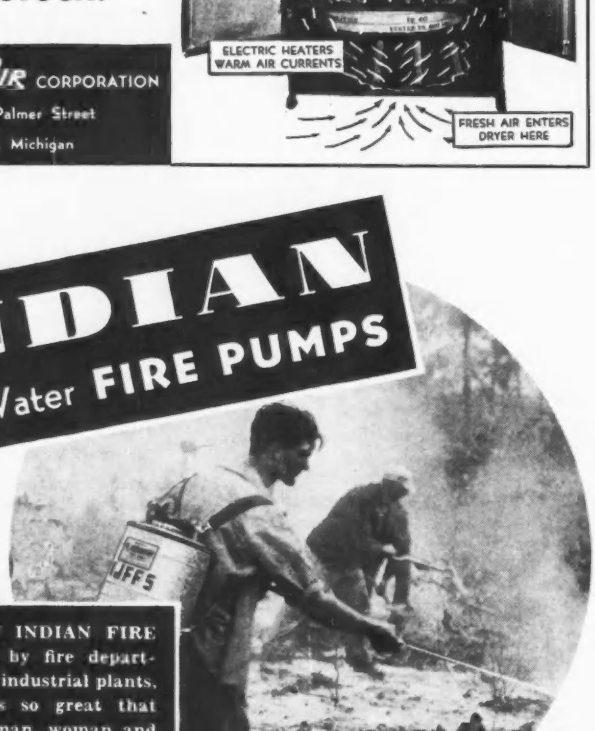
INDIAN
Clear Water FIRE PUMPS



The number of INDIAN FIRE PUMPS in use by fire departments, foresters, industrial plants, farmers, etc., is so great that virtually every man, woman and child in this country at some time or other comes in contact with them or benefits from the protection which they afford.

USE INDIAN FIRE PUMPS ON INSIDE and OUTSIDE FIRES

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Hercules Equipment & Rubber Co., 435 Brannan Street, San Francisco, California

Fire Fighting on

Capt. H. W. Backman, who writes the following interesting account, has been a member of the N.F.P.A. for a number of years. Prior to the war, Captain Backman was a captain in the Waltham, Massachusetts, Fire Department, and was Secretary of the Massachusetts Fire Department Instructors' Association.

He was selected to re-organize the fire department at Hingham, Massachusetts, and served as chief and drillmaster in that community for a year prior to becoming a fire officer in the United States Army.

Captain Backman has served in the African and Italian theatres.

Dear Mr. Bugbee:

I have been assigned to an area of considerable size with a large population. I think that I mentioned before that it is about 9,500 square miles with over 3,500,000 people. In my planning, thanks to my studies of the past and the valuable information from the N.F.P.A., I have had no difficulty arranging the type of reports that I have to make.

A few weeks ago I received orders to make a survey of a certain city which I completed in three days, covering about everything from the water supply to building construction and climatic conditions.

One evening the firemen demonstrated the use of their equipment for me. There was very little left, as there is not a piece of apparatus or a truck in the city, except a small portable 150 to 200 G. P. M. pump and no way of carrying that. As there is no water in the city it is of no use anyway.

The enemy took everything as they retreated, the ten pieces of equipment and even the three pumps in the waterworks station which accounted for the absence of water. They tried to take the firemen, too, causing a wholesale scramble to the mountains. The Commandante or Chief was taken, but he escaped and is now back with the department. As soon as the Allies moved in, the firemen began to return, but there was still no equipment or apparatus.

In addition to the permanent men there were 270 volunteers; their salary being only 300 lire a month. ($3 less than the permanent men). The latter you can readily see were the loyal Fascists, and this was a way of repaying them.

The firemen used scaling ladders of the type so common in Europe (2 spars) and went through a short drill on their tower. I thought some of their drills rather crude and went through a few evolutions myself, much to the delight of the firemen. I realize now it was a good move, for when I had completed, they told my interpreter that they were fully convinced that I was a real fireman and not a clerk taking notes. I explained that I had been a fireman for twenty-five years. The result of all this was to ask if I would like to be their fire chief. Of course, you know my answer.

the Italian Front

I was on the roof of my villa that afternoon and noticed some smoke. I went down and had an English soldier take me to the fire in his American truck. I found a large area of hay field on fire with no help or water. As there was no way to notify the fire department, I had the driver take me to the station where we picked up fifteen firemen. On the way back I saw the drinking water tank truck filling bottles for civilians. I stopped and told the driver to follow me. Naturally when I had returned the fire had gained, so I grabbed an old broom and ran about two hundred feet through the field toward the fire. I stopped suddenly, as it occurred that the field might have been mined. It was a common thing every few days to have a farmer reported killed in his fields.

I carefully retraced my steps and once on the road again ran down to the next house in the path of the flames. With some of the firemen I tried to make a stand. We had no water and had to depend on shovels, brooms, and twigs. We waited near a large haystack at the rear of the house and tried to keep the fire from the stack, but when a stiff breeze is driving fire through dry hay four to five feet high, it takes more than brooms and man power.

We were brushing when suddenly someone yelled *miens! miens!* which is Italian for mines. We scattered. I ran to the road and told the drivers to back the two trucks as fast as possible. We had only been watching a few seconds when there was a loud report and explosion. We fell flat behind the truck and waited a while before getting up. We watched again until another explosion put us back down again. This time I thought I would like to watch any more explosions. I stood up and sure enough there was another which blew straight up about seventy-five feet. There were fifty-two mines and grenades in that haystack.

There was nothing we could do so I went to the Commissioner in charge of the district and took him to the fire. I reminded him of what I had said about having at least one truck to carry the firemen and also asked him to issue an order to have the water truck go to all fires. In this country where many are hungry and have to be fed by us, we cannot afford to have fires that consume food for man or beast.

The buildings were of stone and concrete so there was no damage to them, but a couple of light wooden sheds burned. The loss was chiefly to the hay and grain, and about thirty acres of land were burned.

These mines have wires strung through the field about six inches to a foot above the ground. When they are touched the least bit, the mine goes off. Many buildings and fields are mined. I have to investi-

(*Continued on Page 28*)

E & J RESUSCITATORS ARE YEARS AHEAD

★

E & J Resuscitators were being used by Fire Departments, Industrials and Hospitals TWELVE YEARS before other manufacturers attempted to build automatic breathing machines. Today, E & J equipment incorporates vital advances in design and construction which maintain this record of vision and superiority.

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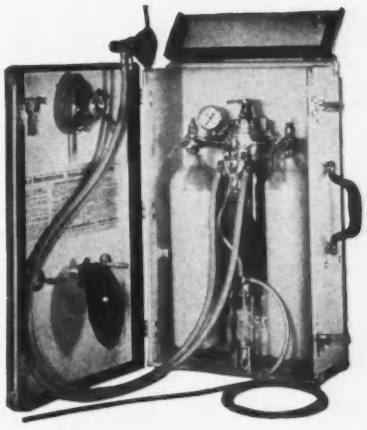

E & J GIVES YOU TOMORROW'S RESUSCITATOR TODAY

The same E & J vision, which developed the modern Resuscitator years before other manufacturers entered this field, is keeping E & J Resuscitators of today years ahead in efficiency, reliability, simplicity and safety. That is why so many more E & Js than all other makes and types combined are being purchased by Fire Departments, Industrials, Hospitals, Beaches and First Aid Squads everywhere.

WE INVITE YOUR THOROUGH INVESTIGATION OF THE GREAT LIFE SAVING RECORD OF THE E & J RESUSCITATOR INHALATOR AND ASPIRATOR.

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Drexel Bldg. Philadelphia — **17 East 42nd St. New York City** — **530 Fernando St. Pittsburgh** — **581 Boylston St. Boston**

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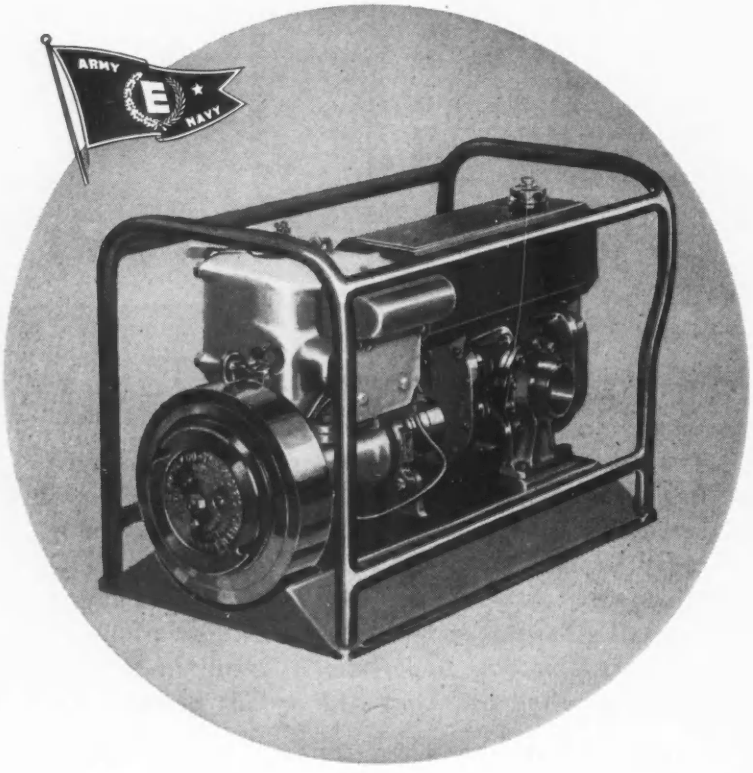
Pioneers and Specialists in Mechanical Artificial Respiration

Pacific
HANDY BILLY
Portable Pumper



The principles of design and precision manufacture that have made the Pacific Handy Billy such an effective fire fighter for the Navy will, in due course, be available to protect forestry, industry and shipping against the ravages of fire.

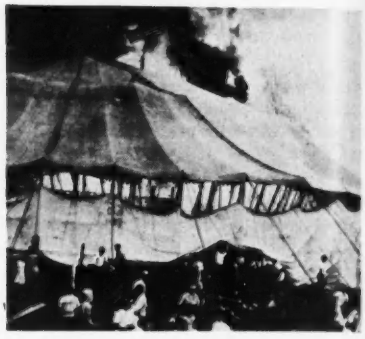
Fire Fighting Equipment Division

PACIFIC MARINE SUPPLY COMPANY

SEATTLE, WASHINGTON

CIRCUS HOLOCAUST

(Continued from Page 10)



Crowds duck under the canvas to escape flames which can be seen lighting inside of tent.

were steps five feet wide leading over the animal exit runway, but the audience, mainly women and children, found these steps totally inadequate as they attempted to clamber over the top of the cage runways. Most of the bodies of those who failed to escape were found in this area.

Another cause of confusion and injury was the extensive use of loose folding seats. As the people dashed out they shoved the chairs down the tiers ahead of them. Those in the middle of the tiers stumbled and fell across the piles of loose chairs blocking their escape. Persons in the first five or six rows got out more easily. Those in the back jumped approximately a dozen feet to the ground to escape under the canvas.

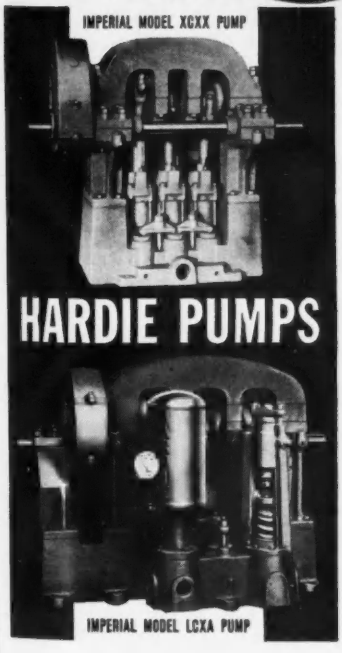
The Hartford Fire Department had not been asked to patrol the grounds. Three hydrants were available, the nearest was two hundred feet from the tent. One engine company was within a half mile and other stations were approximately two miles away. Seven engine and three ladder companies responded to several box alarms sounded simultaneously.

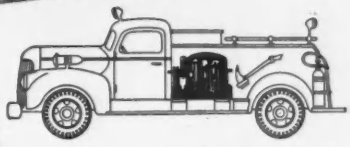
Most of the fatalities were due to burns as the blazing canvas fell on the crowd, igniting flimsy summer clothing. This is in contrast to the Cocoanut Grove fire in Boston where many of the deaths were by suffocation. There were reportedly 6,789 paid admissions that afternoon, about 75 per cent of the seating capacity of the 425-foot long tent. Estimates of loss to circus property varied from $200,000 to $300,000, including destruction to the tent valued at $50,000. According to press reports the liability. Liability suits already total $497,000.

Authorities in Connecticut and other states are taking steps to prevent similar circus disasters. One circus showing in another city was compelled by state police to remove the top canvas of its main tent. A detail of fifty firemen and several pumpers with charged hose lines was provided during the performance.

HARDIE PUMPS & GUNS
IN OUTSTANDING FOG FIRE FIGHTERS

A big Fog Fire Truck built by The Mack Mfg. Company for U.S. Army Engineers, equipped with a Hardie Imperial LCXA pump, delivering 60 gallons per minute at 800 P. S. I. nozzle pressure.





● Long established, fully responsible engineers and manufacturers of Fog Fire Fighting Units know from experience how to judge the high pressure pump to be specified in such equipment. Hardie High Pressure Pumps are found in the Fog Fire Fighters built for U.S. Army Engineers by The Mack Manufacturing Company of Long Island City, N.Y., General Fire Truck Corporation of Detroit, Michigan, General Pacific Corporation, Los Angeles, California, Seagraves Company, Columbus, Ohio, in the crash trucks built for Pan-American Airways by Edgar Road Tank Works, Linden, New Jersey, and in Fog Fire Fighters built by other specialized fire equipment manufacturers.

The Hardie Pump easily delivers its full rated capacity and pressure at the slow speed of 130 R.P.M. Exclusive design and construction assure unfailing performance with nozzle pressures of 500 to 800 P. S. I. The Hardie is the only such pump completely lubricated—even to the plungers and plunger cups.

When you buy a Fog Fire Fighter, specify a Hardie Pump.

THE HARDIE MFG. COMPANY

Hudson, Michigan **Los Angeles, Calif.** **Portland, Oregon**

Perfected Fog Fire Gun

● The Hardie Fog Fire Gun provides single trigger control for all operations. Trigger alone opens and closes the gun and selects the type of stream desired. It completely and thoroughly breaks up the stream into a fine steam-like fog. No splatter. Strongly built to deliver nozzle pressure of 500 to 1000 P.S.I.

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- Lining held by snap buttons
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- Wool Lining
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- Wide protecting flap
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See your local Midwestern distributor for prices and literature, or write the factory.

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The tone volume of these sirens is powerful and clear. Each size is built with ample overload capacity, the horsepower developed far exceeding the rating—assurances that signals will be heard at maximum distances, and that FEDERAL Sirens will be ready for all emergency conditions.

Permission to purchase should be obtained on WPB 1319—available at your nearest WPB office.

WRITE FOR BULLETIN

FEDERAL ELECTRIC CO., Inc.
SIREN HEADQUARTERS
8717 So. State Street Chicago 19, Illinois

Flameproof Fabric Available for Tents

THE Hartford circus fire has brought to the N.F.P.A. office many inquiries as to the possibilities of flameproofing canvas for open air gatherings. The circus tent that burned in Hartford had no flameproofing of any kind.

The National Fire Protection Association adopted recommended requirements for flameproof textiles subject to weather exposure in 1941 on recommendation of its Committee on Fireproofing and Preservative Treatments. These requirements were intended to apply to fabrics subject to bleaching with water from such causes as laundering, exposure to the weather or hose streams. The general requirements set forth were that the fabric should be treated with chemicals that do not cause injury to the skin from handling of the treated material. The chemicals used should not be hygroscopic to an extent that would induce dampness in the treated fabric and where the appearance and texture of the treated fabric is important the treatment should not cause changes objectionable from this standpoint. Where waterproofing was desired, the committee recommended reference to Federal Specification CCC-D-746 for "Duck, Cotton; Fire, Water and Weather Resistant." It was stipulated that the material after fireproofing treatment should be approximately as flexible as the untreated material and not show a marked increase in stiffness after exposure to weather and the treatment should cause no decrease in strength of the fabric.

The committee set forth a simple method of testing any fabric for its fireproof qualities by a simple flame test and also an accelerated weathering test. When tested by the method outlined, no specimen of the treated material should continue to flame for more than two seconds after the burner was withdrawn and the average length of char of specimens should not be more than 3½ inches out of a specimen 2 by 12½ inches.

Recommended Requirements for Flameprofing of Textiles gives test procedures which can be utilized by inspectors.

Underwriters' Laboratories lists flameproof fabrics made by two different manufacturers. These fabrics are chemically treated and may be painted or otherwise. The product is comparatively difficult to ignite and does not propagate flame even when in drafts beyond the area exposed to the source of ignition. Smouldering combustion which occurs on ignition may spread in folds of such fabrics but does not extend beyond the area exposed to ignition. The treatment may be expected to remain effective under ordinary conditions of exposure for the useful life of the fabric.

EXPERIENCE COUNTS

FMC HIGH-PRESSURE FOG HAS SMOTHERED THOUSANDS OF FIRES

OF ALL KINDS

We maintain our own fire school to train firemen on this recognized and exclusive FMC Fog Fire Fighting System.

This school is open to all firemen using FMC Fire Apparatus.

There's nothing else like FMC.

High-pressure fog for fire fighting was originated by the John Bean Mfg. Co. a number of years ago. And — since then — it has developed this system which has revolutionized modern fire fighting technique.

Here's why! The FMC High-Pressure Pump delivers and maintains 800 lbs. pump pressure — more than 600 lbs. nozzle pressure. This high pressure gives you a combination of finely-atomized water and high velocity—just what you need to put out fires faster.

FMC High-Pressure research goes steadily on — both at the factory and in the field.

Fires have been put out all over the United States for Army and Navy instructional purposes, and by the hundreds of rigs in civilian use. Also an organized and trained fire department is located at the factory to test the equipment at actual fires. Hundreds of runs have been made.

Investigate! Get the facts about this new and revolutionary fire-fighting technique. Right now — the Armed Forces are taking most of the production of FMC High-Pressure Fog Fire Fighters. But — you should be ready to modernize the moment civilian needs can be met. Start planning — now!

FIRES OF EVERY TYPE

STORES
FARM HOUSES
RESIDENCES
BOATS
DOCKS
TRANSFORMERS
CHICKEN HOUSES
FOREST FIRES
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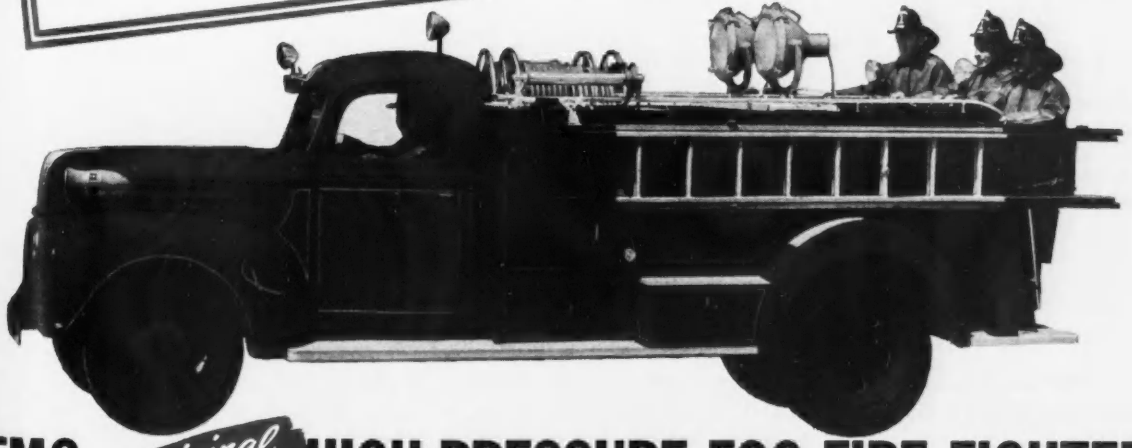
GAS
GASOLINE
GRASS
and many others

STANDARD FMC FOG FIRE FIGHTER. *A self-contained fire-fighting unit. Carries its own water supply and complete fire-fighting equipment. Takes water from any source through a fine strainer before going into pump. Supplies 2 lines of hose with fire guns discharging 30 gallons per minute per gun at 600 lbs. gun pressure.*



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CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

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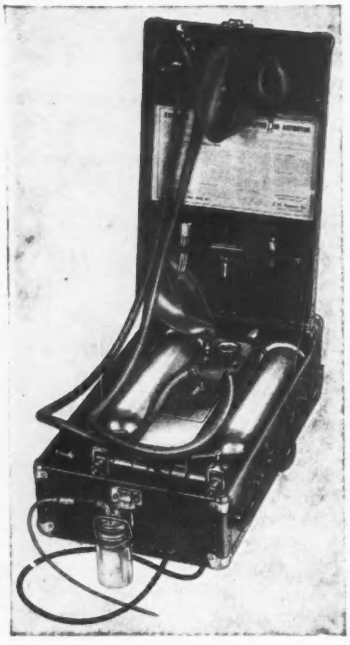
BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

Design . . .

Makes The DIFFERENCE!



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EMERSON

Sixteen years ago Emerson pioneered the diaphragm type iron lung, which is today standard everywhere — Four years ago, Emerson pioneered the pistonless pressure - controlled Resuscitator which through simplicity and effectiveness is rapidly gaining the same reputation.

J. H. EMERSON CO.
24 Cottage Park Ave.,
Cambridge, Mass.
Representatives in Principal Cities

Fire Fighting on the Italian Front

(Continued from Page 23)

gate a ticking noise in a building today which I hope will be an innocent Big Ben. There are no windows in any of the buildings here, so as I write I am shivering from the cold.

Sincerely,
June 19, 1944 H. W. BACKMAN.

●

Training Volunteer Firemen

(Continued from page 16)

community must be sold the idea that the volunteer units render indispensable service. To accomplish this, there should be a course in the fire training program under the head of Public Speaking to equip officers and members of a fire company with the ability and confidence to appear before schools and civic organizations. In that way, public support could be enlisted for cooperation in the observance of fire prevention.

We have the stuff to do it with, all we need is a little bit of selling. There is no other organization that you can belong to and get so much for $10 a year in education, information, and anything you might want in the way of fire protection and fire prevention as you get out of the National Fire Protection Association. Some of you have heard me recite the poem "Play Ball" which is applicable to practically everything in life. Let us play ball with the Volunteer Firemen's Section of the N.F.P.A.

PLAY BALL

This world is but a diamond with all the bases laid,
And on it life's great game of ball is played.
The teams are Human Beings versus Fate,
And Father Time's the umpire watching by the plate.

We're at the bat, our purpose o'er and o'er
Is to wield ambition's bat and to try to score;
To try and solve the curves the pitcher throws,
And lam the sphere where not a fielder goes.

Some of us seem to bat with skill immense
Knocking long homers over the deep field fence.
Others bunt infield, but wildly race
And beat the ball down to the primal base.

Still others, though they strive their best, no doubt,
Fan wildly at the air and then — strike out.
They seek the bench, downcast, shamefaced,
Crestfallen, blue, ambition gone,
Or rag the umpire, growling like a bear,
"Go on, you robber; that decision wasn't fair."

That's not the game, be not a grouch or quitter,
What though you're not a straight 300 hitter,
You've got another chance, stand to the plate,
Grab tight your bat, get braced, and calmly wait;
Wait for a good one, let the others rip,
And when it comes, now lam it hard, and zip.

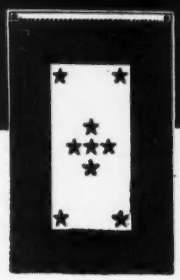
It's got to go, and so must you, old man,
Hike for the base, keep going, yes, you can.
Steal second, good, now easy, not too gay,
There, get a lead, a hit, now you're away.

Keep going, don't stop, don't lose that dandy stride,
You've got to beat the throw in, slide, now slide.

Hurrah! you did it, of course you scored,
Why there's your tally marked up on the board.
And now, you'll win the game; there is no doubt at all,
You just can't lose, old man, if you'll just *play ball.*

——*Author Unknown*

HONOR YOUR SERVICE MEN



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Honor your fellow-firemen now serving with the armed forces, by displaying this official

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One star for each one in service. Available in any size or material desired. Send for Free illustrated catalogue and price list today.

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ROLL of HONOR

A permanent plaque, with individual names in silver on gold-bordered permanent name plates. Beautiful walnut plaque with eagle and victory torches. Write for price list today.

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It's Quicker, It's Faster.

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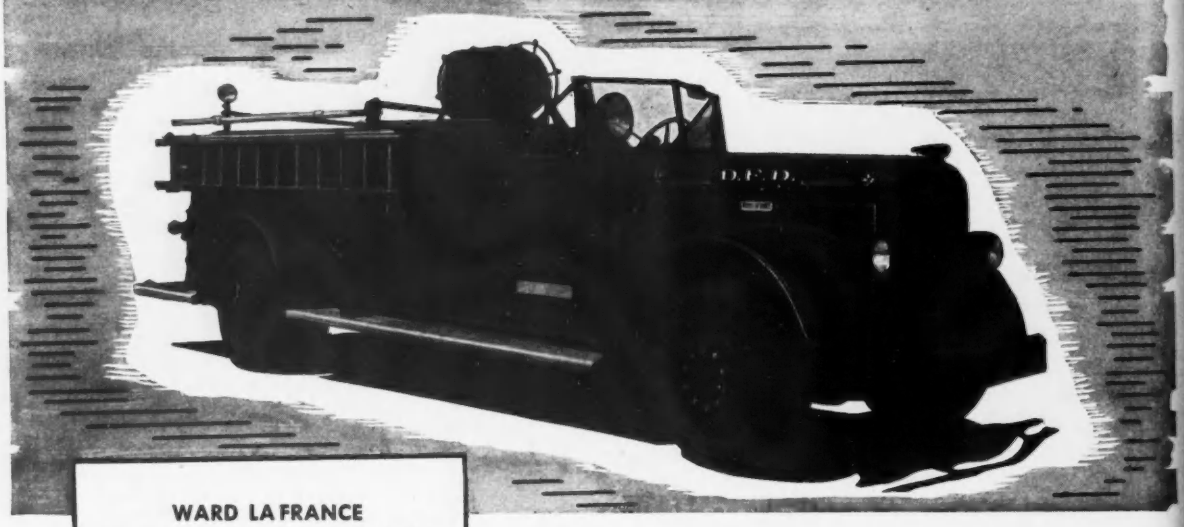

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(Modified to fit the exact requirements of the Duluth Fire Department.)

Overall Dimensions
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Total Loaded Weight 17,300 lbs.

Wheelbase 185 in.

Performance . . . Road speed 60 m.p.h.; 30 m.p.h. on 7½% grade.

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Booster Tank 200 gals., operated by separate rotary gear-type booster pump.

Hose Reel 300 ft. of ¾ in. hose top, mounted behind driver's cab to Duluth specifications.

Service Brakes total braking area 398.2 sq. in.

Local requirements and preferences are fully reflected in the Ward LaFrance Triple Combination Pumper recently delivered to the Duluth, Minnesota, Fire Department.

Seasoned and expert Ward LaFrance engineering, applied to one of eleven basic Ward LaFrance models* produces equipment of top-notch fire fighting efficiency. Whether your community is large or small, or has unusual operating conditions, we urge you to investigate the sound economy and common sense behind Ward LaFrance engineering and manufacturing processes.

*Some models not available because of W. P. B. limitation orders.

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